

RF Test Report

For

Applicant Name: PHROZEN TECH CO., LTD.

Address: 3F., NO287, NIUPU RD., XIANGSHAN DIST., HSINCHU CITY

EUT Name: 30091, TAIWAN
Desktop 3D Printer

Brand Name: phrozen

Model Number: Phrozen Sonic Mighty 14K Revo

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.

F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,

Address: Tantou Community, Songgang Street, Bao'an District, Shenzhen,

China

Report Number: BTF240110R01001 Test Standards: 47 CFR Part 15.247

Test Conclusion: Pass

FCC ID: 2BCTP-14KREVO

Test Date: 2024-02-28 to 2024-04-07

Date of Issue: 2024-04-15

Prepared By: Gavin Cui

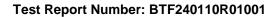
Gavin Cat (Project Engine)
Date: 2024-44 15

Approved By:

Ryan.CJ / EMC Manager

Date: 2024-04-15

Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd., All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.





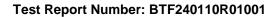
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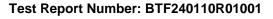
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1 Introduction

1.1 Identification of Testing Laboratory

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.	
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

		<u> </u>
Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.		
Address:		F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou
	Address.	Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:		+86-0755-23146130
	Fax Number:	+86-0755-23146130
FCC Registration Number:		518915
Designation Number: CN		CN1330

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.



Test Report Number: BTF240110R01001

2 Product Information

2.1 Application Information

Company Name:	PHROZEN TECH CO., LTD.
Address:	3F., NO287, NIUPU RD., XIANGSHAN DIST., HSINCHU CITY 30091, TAIWAN

2.2 Manufacturer Information

Company Name:	PHROZEN TECH CO., LTD.
Address:	3F., NO287, NIUPU RD., XIANGSHAN DIST., HSINCHU CITY 30091, TAIWAN

2.3 Factory Information

Company Name:		DONGGUAN CITY PHROZEN TECH CO., LTD.
Add	lress:	Room 601, No.28, Xinhong Road, Lincun, Tangxia Town, Dongguan City, Guangdong Province, China

2.4 General Description of Equipment under Test (EUT)

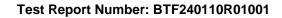
EUT Name:	Desktop 3D Printer
Test Model Number:	Phrozen Sonic Mighty 14K Revo
Hardware Version:	PZPC2023V2

2.5 Technical Information

Power Supply:	120VAC 60Hz
Ratings:	Input: 100-240VAC 50-60Hz, 240W max
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz; 802.11n(HT40): 2422MHz to 2452MHz
Number of Channels:	802.11b/g/n(HT20): 11 Channels; 802.11n(HT40): 7 Channels
Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n(HT20 and HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type:	FPC Antenna
Antenna Gain [#] :	2

Note

^{#:} The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.





3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards: 47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

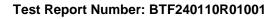
3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB
Occupied Bandwidth	±69kHz
Transmitter Power, Conducted	±0.87dB
Power Spectral Density	±0.69dB
Conducted Spurious Emissions	±0.95dB
Radiated Spurious Emissions (above 1GHz)	1-6GHz: ±3.94dB 6-18GHz: ±4.16dB
Radiated Spurious Emissions (30M - 1GHz)	±4.12dB

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3 Summary of Test Result

Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass



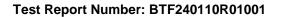


Test Configuration

Test Equipment List

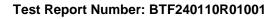
Conducted Emission at AC power line								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	1	1			
Coaxial Switcher	SCHWARZBECK	CX210	CX210	1	1			
V-LISN	SCHWARZBECK	NSLK 8127	01073	2023-11-16	2024-11-15			
LISN	AFJ	LS16/110VAC	16010020076	2023-11-26	2024-11-15			
EMI Receiver	ROHDE&SCHWA RZ	ESCI3	101422	2023-11-15	2024-11-14			

Occupied Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in non-restricted frequency bands									
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date				
RFTest software	1	V1.00	1	1	1				
RF Control Unit	Techy	TR1029-1	/	1	1				
RF Sensor Unit	Techy	TR1029-2	1	1	1				
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2023-11-16	2024-11-15				
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	1	1				
WIDEBAND RADIO COMMNUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2023-11-16	2024-11-15				
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2023-11-16	2024-11-15				





Band edge emissions (Radiated) Emissions in frequency bands (below 1GHz)						
Emissions in frequen Equipment	cy bands (above 1 Manufacturer	GHz) Model No	Inventory No	Cal Date	Cal Due Date	
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23	
Preamplifier	SCHWARZBECK	BBV9744	00246	1	1	
RE Cable	REBES Talent	UF1-SMASMAM-1 0m	21101566	1	1	
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	1	1	
RE Cable	REBES Talent	UF1-SMASMAM-1 m	21101568	1	1	
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	1	1	
RE Cable	RE Cable REBES Talent U		21101573	1	1	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	1	1	/	
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2023-11-13	2024-11-12	
EMI TEST RECEIVER	ROHDE&SCHWA RZ	ESCI7	101032	2023-11-16	2024-11-15	
SIGNAL ANALYZER	ROHDE&SCHWA RZ	FSQ40	100010	2023-11-16	2024-11-15	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	1	1	1	
Broadband Preamplilifier	SCHWARZBECK	BBV9718D	80000	1	1	
Horn Antenna SCHWARZBECK EZ_EMC Frad		BBHA9120D	2597	2022-05-22	2024-05-21	
		FA-03A2 RE+	1	1	/	
POSITIONAL CONTROLLER	SKET	PCI-GPIB	1	1	1	
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-13	2024-11-12	





4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description					
TM1	802.11b mode	Keep the EUT in 802.11b transmitting mode.					
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode.					
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode.					
TM4 802.11n(HT40) mode Keep the EUT in 802.11n(HT40) transmitting mode.							
Note: Al	Note: All the mode have been tested, and only the worst mode are in the report.						

Test Report Number: BTF240110R01001



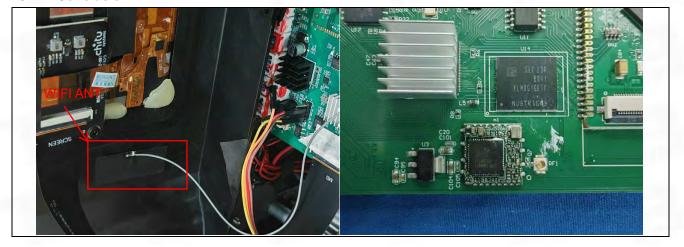
5 Evaluation Results (Evaluation)

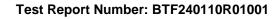
5.1 Antenna requirement

Test Requirement:

Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

5.1.1 Conclusion:







6 Radio Spectrum Matter Test Results (RF)

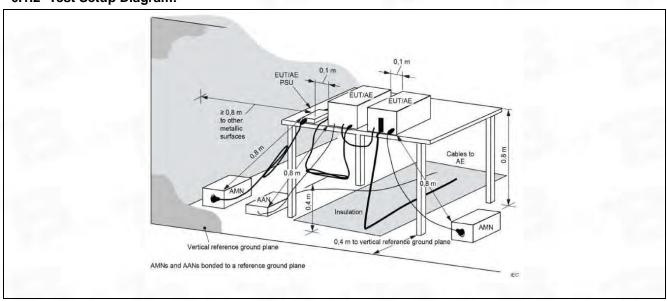
6.1 Conducted Emission at AC power line

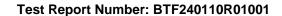
Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).					
Test Method:	ANSI C63.10-2013 section 6.2 ANSI C63.10-2020 section 6.2					
Test Limit:	Frequency of emission (MHz) 0.15-0.5 0.5-5 5-30 *Decreases with the logarithm of the second content of the	Conducted limit (dE Quasi-peak 66 to 56* 56 60 ne frequency.	Average 56 to 46* 46 50			
Procedure:	*Decreases with the logarithm of the frequency. Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices					

6.1.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.5 °C
Humidity:	50 %
Atmospheric Pressure:	1010 mbar

6.1.2 Test Setup Diagram:

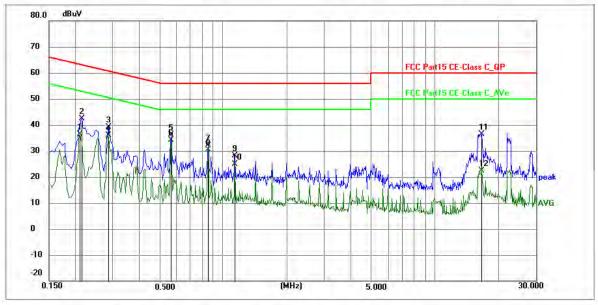




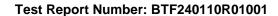


6.1.3 Test Data:

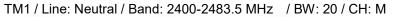
TM1 / Line: Line / Band: 2400-2483.5 MHz / BW: 20 / CH: M

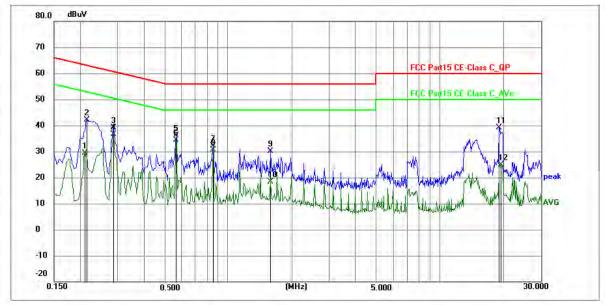


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2085	25.93	10.56	36.49	53.26	-16.77	AVG	Р	
2	0.2130	31.75	10.56	42.31	63.09	-20.78	QP	Р	
3	0.2850	28.47	10.56	39.03	60.67	-21.64	QP	Р	
4	0.2850	25.31	10.56	35.87	50.67	-14.80	AVG	P	
5	0.5685	25.61	10.61	36.22	56.00	-19.78	QP	Р	
6 *	0.5685	23.63	10.61	34.24	46.00	-11.76	AVG	Р	
7	0.8520	21.48	10.68	32.16	56.00	-23.84	QP	Р	
8	0.8520	19.77	10.68	30.45	46.00	-15.55	AVG	Р	
9	1.1355	17.57	10.66	28.23	56.00	-27.77	QP	Р	
10	1.1355	14.34	10.66	25.00	46.00	-21.00	AVG	Р	
11	16.7190	25.59	10.91	36.50	60.00	-23.50	QP	Р	
12	16.7190	11.48	10.91	22.39	50.00	-27.61	AVG	Р	y

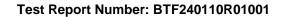








No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2085	18.92	10.56	29.48	53.26	-23.78	AVG	Р	
2	0.2130	31.63	10.56	42.19	63.09	-20.90	QP	Р	
3	0.2850	28.53	10.56	39.09	60.67	-21.58	QP	Р	
4	0.2850	26.06	10.56	36.62	50.67	-14.05	AVG	Р	
5	0.5685	25.59	10.61	36.20	56.00	-19.80	QP	Р	
6 *	0.5685	23.86	10.61	34.47	46.00	-11.53	AVG	Р	
7	0.8520	21.51	10.68	32.19	56.00	-23.81	QP	Р	
8	0.8520	20.07	10.68	30.75	46.00	-15.25	AVG	Р	
9	1.5855	19.49	10.66	30.15	56.00	-25.85	QP	Р	
10	1.5855	7.74	10.66	18.40	46.00	-27.60	AVG	Р	
11	19.0860	27.98	11.03	39.01	60.00	-20.99	QP	Р	
12	19.4865	13.76	11.03	24.79	50.00	-25.21	AVG	Р	





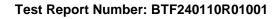
6.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Method:	ANSI C63.10-2013, section 11.8 ANSI C63.10-2020, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
	a) Set RBW = 100 kHz. b) Set the VBW >= [3 × RBW]. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Procedure:	11.8.1 Option 1 The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW ≥ [3 × RBW]. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "-6 dB down amplitude". If a marker is below this "-6 dB down amplitude" value, then it shall be as close as possible to this value.
	11.8.2 Option 2 The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

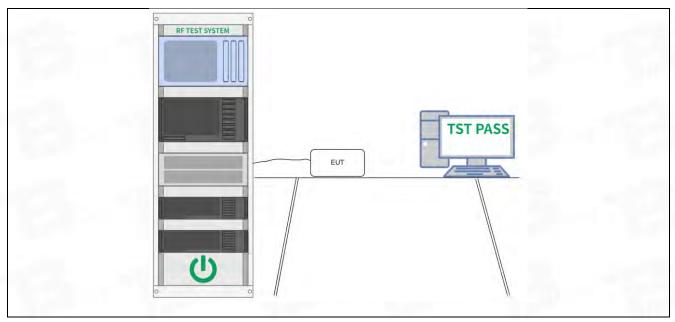
6.2.1 E.U.T. Operation:

Operating Environment:		
Temperature:	24 °C	
Humidity:	50 %	
Atmospheric Pressure:	1010 mbar	

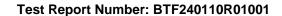
6.2.2 Test Setup Diagram:







6.2.3 Test Data:





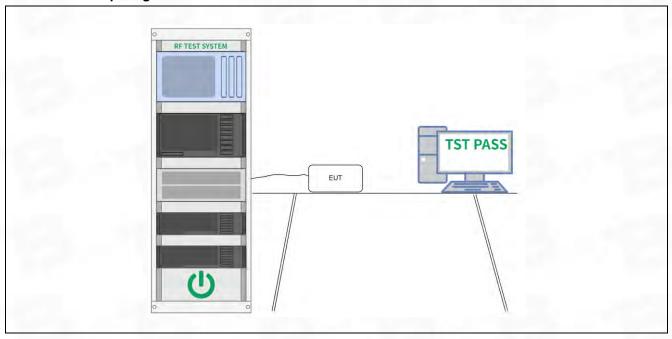
6.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Method:	ANSI C63.10-2013, section 11.9.2 ANSI C63.10-2020, section 11.9.2 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Procedure:	ANSI C63.10-2013, section 11.9.2 Maximum conducted (average) output power ANSI C63.10-2020, section 11.9.2 Maximum conducted (average) output power

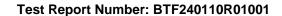
6.3.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24 °C		
Humidity:	50 %		
Atmospheric Pressure:	1010 mbar		

6.3.2 Test Setup Diagram:



6.3.3 Test Data:





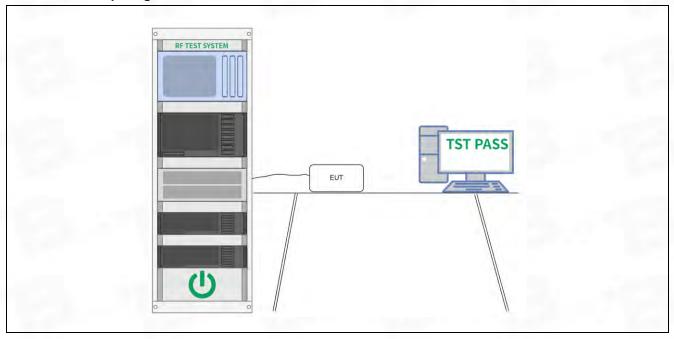
6.4 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Method:	ANSI C63.10-2013, section 11.10 ANSI C63.10-2020, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission ANSI C63.10-2020, section 11.10, Maximum power spectral density level in the fundamental emission

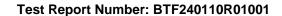
6.4.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24 °C		
Humidity:	50 %		
Atmospheric Pressure:	1010 mbar		

6.4.2 Test Setup Diagram:



6.4.3 Test Data:





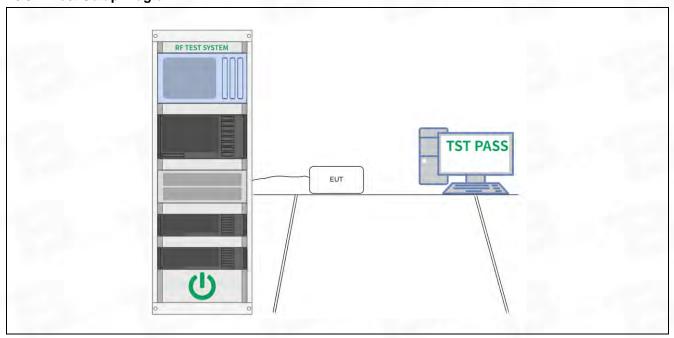
6.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
	ANSI C63.10-2013 section 11.11
Test Method:	ANSI C63.10-2020 section 11.11
	KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3
Procedure:	
	ANSI C63.10-2020
	Section 11.11.1, Section 11.11.2, Section 11.11.3

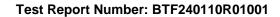
6.5.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24 °C		
Humidity:	50 %		
Atmospheric Pressure:	1010 mbar		

6.5.2 Test Setup Diagram:



6.5.3 Test Data:





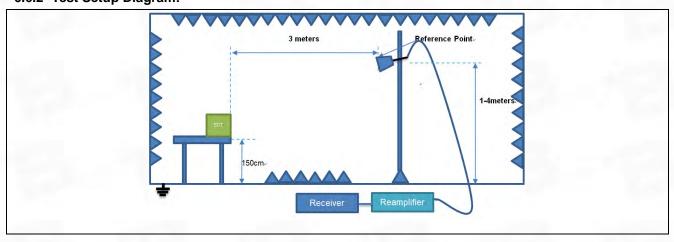
6.6 Band edge emissions (Radiated)

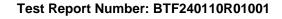
	Refer to 47 CFR 15.247	(d), In addition, radiated emission	ons which fall in the				
Test Requirement:	restricted bands, as defi	restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`					
	ANSI C63.10-2013 sect).				
Test Method:	ANSI C63.10-2020 sect	ion 6.10					
	KDB 558074 D01 15.24	7 Meas Guidance v05r02					
	Frequency (MHz)	Field strength	Measurement				
		(microvolts/meter)	distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705	24000/F(kHz)	30				
	1.705-30.0	30	30				
	30-88	100 **	3				
	88-216	150 **	3				
	216-960	200 **	3				
Test Limit:	Above 960	500	3				
1001 2	** Except as provided in paragraph (g), fundamental emissions from intentional						
	radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within						
		these frequency bands is permitted under other sections of this part, e.g., §§					
	15.231 and 15.241.						
	In the emission table above, the tighter limit applies at the band edges.						
	The emission limits shown in the above table are based on measurements						
	employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz,						
	110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands						
	are based on measurem	nents employing an average det	ector.				
	ANSI C63.10-2013 sect	ion 6.10.5.2					
Procedure:							
	ANSI C63.10-2020 sect	ion 6.10.5.2					

6.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.3 °C
Humidity:	51 %
Atmospheric Pressure:	1010 mbar

6.6.2 Test Setup Diagram:







6.6.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	
1 *	2310.000	64.86	-30.59	34.27	74.00	-39.73	peak	Р	
2	2390.000	64.32	-30.49	33.83	74.00	-40.17	peak	Р	1

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L

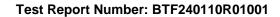
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	65.23	-30.59	34.64	74.00	-39.36	peak	Р
2 *	2390.000	65.27	-30.49	34.78	74.00	-39.22	peak	Р

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	64.93	-30.39	34.54	74.00	-39.46	peak	Р
2	2500.000	64.05	-30.37	33.68	74.00	-40.32	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	64.93	-30.39	34.54	74.00	-39.46	peak	Р
2	2500.000	64.59	-30.37	34.22	74.00	-39.78	peak	Р





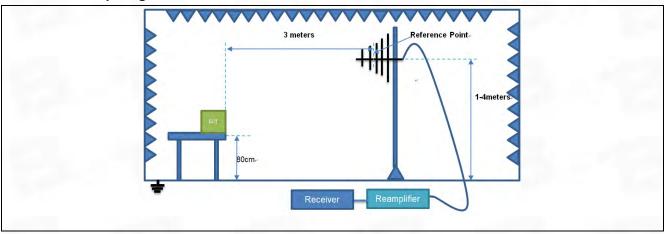
6.7 Emissions in frequency bands (below 1GHz)

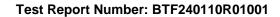
	Refer to 47 CFR 15.247	(d), In addition, radiated emission	ons which fall in the				
Test Requirement:		restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`					
Test Method:	ANSI C63.10-2013 sect ANSI C63.10-2020 sect	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02					
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705	24000/F(kHz)	30				
	1.705-30.0	30	30				
	30-88	100 **	3				
	88-216	150 **	3				
	216-960	200 **	3				
Test Limit:	Above 960	500	3				
	** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.						
Procedure:	ANSI C63.10-2013 secti ANSI C63.10-2020 secti	ion 6.6.4					

6.7.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.3 °C
Humidity:	51 %
Atmospheric Pressure:	1010 mbar

6.7.2 Test Setup Diagram:

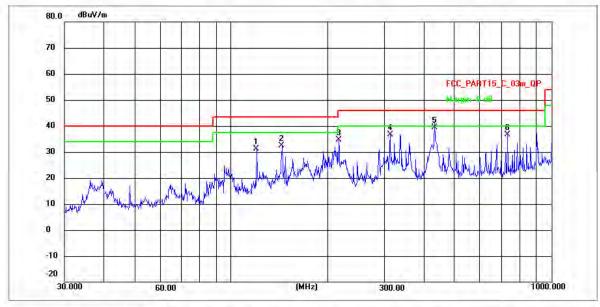






6.7.3 Test Data:

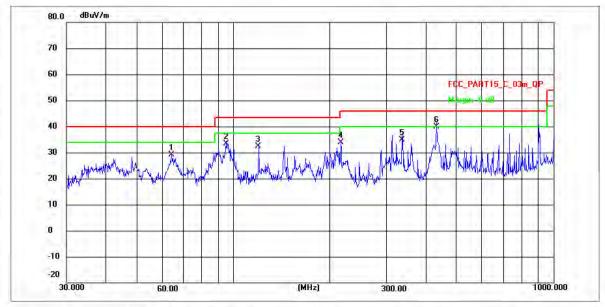
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: M



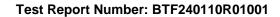
No.	Frequency	Reading		Level	Limit	Margin	Detector	P/F
CVE I	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		- 200
1	120.0659	45.67	-14.52	31.15	43.50	-12.35	QP	Р
2	144.0819	46.92	-14.64	32.28	43.50	-11.22	QP	Р
3	216.0240	51.52	-16.86	34.66	46.00	-11.34	QP	P
4	312.7272	52.74	-16.04	36.70	46.00	-9.30	QP	P
5 *	430.2765	52.72	-13.22	39.50	46.00	-6.50	QP	P
6	729.3583	60.46	-23.76	36.70	46.00	-9.30	QP	Р







No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	63.8707	49.19	-20.09	29.10	40.00	-10.90	QP	Р
2	94.7601	47.80	-14.30	33.50	43.50	-10.00	QP	Р
3	120.0659	46.63	-14.13	32.50	43.50	-11.00	QP	P
4	216.0240	49.28	-15.28	34.00	46.00	-12.00	QP	P
5	336.0352	46.91	-12.11	34.80	46.00	-11.20	QP	Р
6 *	430.2765	52.96	-13.06	39.90	46.00	-6.10	QP	Р





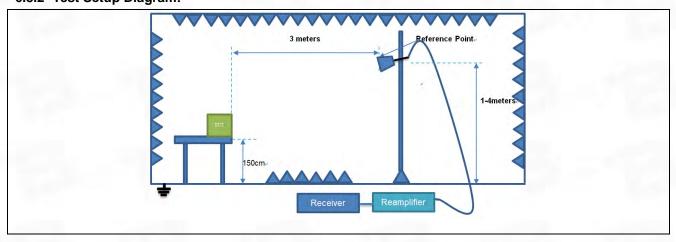
6.8 Emissions in frequency bands (above 1GHz)

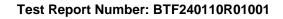
	In addition, radiated emi	ssions which fall in the restricted	d bands, as defined in §					
Test Requirement:		mply with the radiated emission	limits specified in §					
	15.209(a)(see § 15.205(
	ANSI C63.10-2013 section 6.6.4							
Test Method:	ANSI C63.10-2020 section 6.6.4							
		7 Meas Guidance v05r02						
	Frequency (MHz)	Field strength	Measurement					
		(microvolts/meter)	distance (meters)					
	0.009-0.490	2400/F(kHz)	300					
	0.490-1.705	24000/F(kHz)	30					
	1.705-30.0	30	30					
	30-88	100 **	3					
	88-216	150 **	3					
	216-960	200 **	3					
Test Limit:	Above 960	500	3					
		paragraph (g), fundamental em						
	radiators operating under this section shall not be located in the frequency bands							
	54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within							
	these frequency bands in 15.231 and 15.241.	s permitted under other sections	s of this part, e.g., §§					
	In the emission table above, the tighter limit applies at the band edges.							
	The emission limits shown in the above table are based on measurements							
	employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz,							
	110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands							
	are based on measurements employing an average detector.							
	ANSI C63.10-2013 secti	on 6.6.4						
Procedure:								
	ANSI C63.10-2020 section 6.6.4							

6.8.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.3 °C
Humidity:	51 %
Atmospheric Pressure:	1010 mbar

6.8.2 Test Setup Diagram:







6.8.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3484.594	65.97	-29.07	36.90	74.00	-37.10	peak	Р
2	5227.174	69.57	-27.17	42.40	74.00	-31.60	peak	Р
3	7688.574	71.31	-25.06	46.25	74.00	-27.75	peak	Р
4	10212.065	73.74	-24.38	49.36	74.00	-24.64	peak	Р
5	12621.909	73.11	-21.55	51.56	74.00	-22.44	peak	Р
6 *	15226.224	73.46	-20.90	52.56	74.00	-21.44	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L

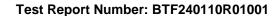
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4673.991	66.47	-28.30	38.17	74.00	-35.83	peak	Р
2	5506.325	72.32	-26.93	45.39	74.00	-28.61	peak	Р
3	6684.834	70.45	-25.21	45.24	74.00	-28.76	peak	Р
4	9571.841	72.43	-23.36	49.07	74.00	-24.93	peak	Р
5 *	13781.146	72.86	-21.03	51.83	74.00	-22.17	peak	Р
6	17043.071	69.69	-18.11	51.58	74.00	-22.42	peak	Р

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3723.042	66.20	-29.03	37.17	74.00	-36.83	peak	Р
2	5227.174	69.57	-27.17	42.40	74.00	-31.60	peak	Р
3	7688.574	71.31	-25.06	46.25	74.00	-27.75	peak	Р
4	9005.529	72.30	-24.30	48.00	74.00	-26.00	peak	Р
5	12621.909	73.11	-21.55	51.56	74.00	-22.44	peak	Р
6 *	15226.224	73.46	-20.90	52.56	74.00	-21.44	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3527.153	68.45	-29.06	39.39	74.00	-34.61	peak	Р
2	4907.971	68.76	-27.63	41.13	74.00	-32.87	peak	Р
3	6684.834	70.45	-25.21	45.24	74.00	-28.76	peak	Р
4	9571.841	72.43	-23.36	49.07	74.00	-24.93	peak	Р
5 *	13462.249	72.72	-20.99	51.73	74.00	-22.27	peak	Р
6	16329.385	70.57	-20.01	50.56	74.00	-23.44	peak	Р



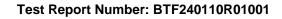


TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3527.153	66.95	-29.06	37.89	74.00	-36.11	peak	Р
2	5227.174	71.07	-27.17	43.90	74.00	-30.10	peak	Р
3	7225.326	71.91	-24.86	47.05	74.00	-26.95	peak	Р
4	9005.529	73.80	-24.30	49.50	74.00	-24.50	peak	Р
5	10212.065	75.24	-24.38	50.86	74.00	-23.14	peak	Р
6 *	15226.224	72.96	-20.90	52.06	74.00	-21.94	peak	Р

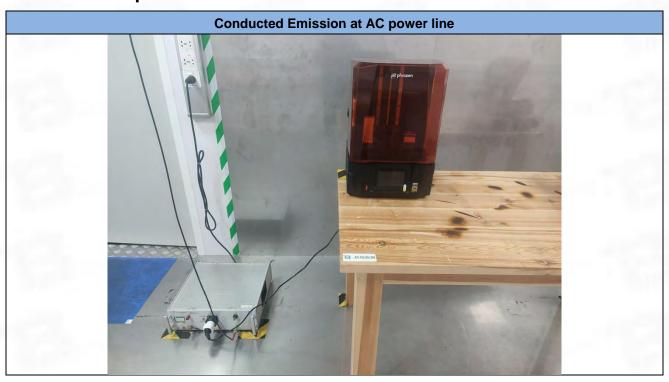
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H

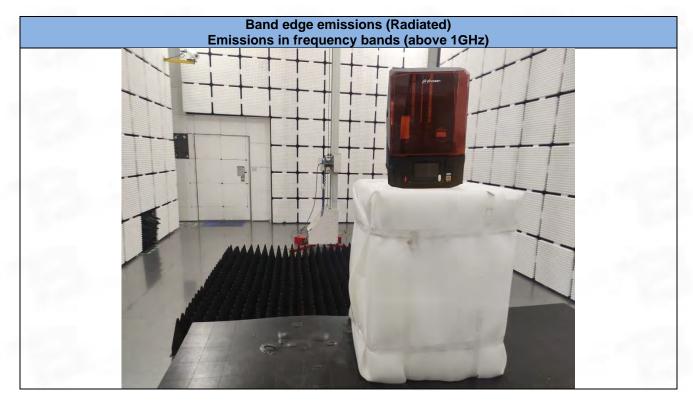
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3484.594	66.47	-29.07	37.40	74.00	-36.60	peak	Р
2	5228.685	70.18	-27.17	43.01	74.00	-30.99	peak	Р
3	6684.834	71.45	-25.21	46.24	74.00	-27.76	peak	Р
4	9544.214	71.53	-23.29	48.24	74.00	-25.76	peak	Р
5	10974.124	74.56	-23.49	51.07	74.00	-22.93	peak	Р
6 *	14312.958	73.18	-21.16	52.02	74.00	-21.98	peak	Р

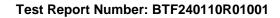




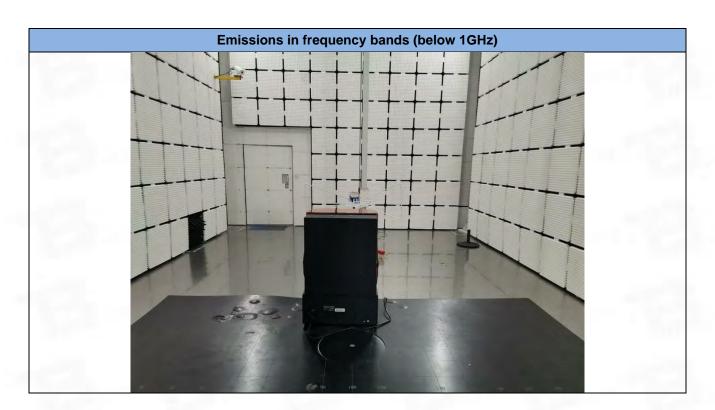
Test Setup Photos

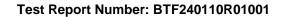








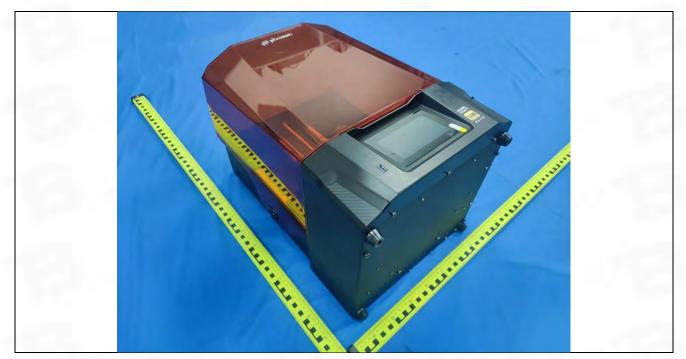


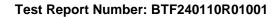




EUT Constructional Details (EUT Photos) 8



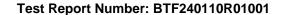
















Phrozen Sonic Mighty 14K Revo **Desktop 3D Printer**

PHROZEN TECH CO., LTD. Manufactured in China

Model: Phrozen Sonic Mighty 14K Revo

Input: 100-240V AC; 50-60Hz

Power: max 240W

Year of Production: 2023

Net Weight: 18kg

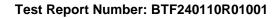
phrozen3d.com



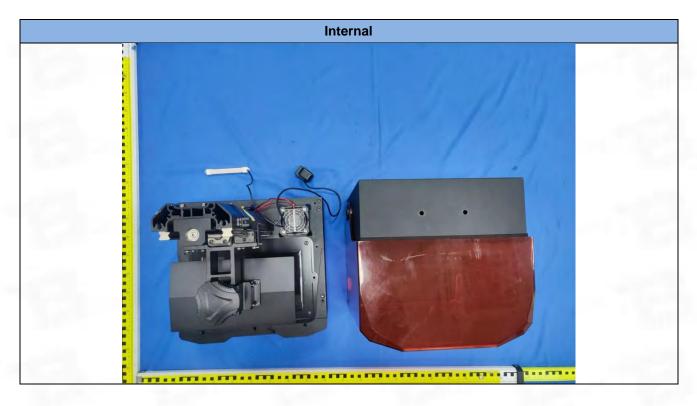




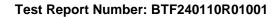




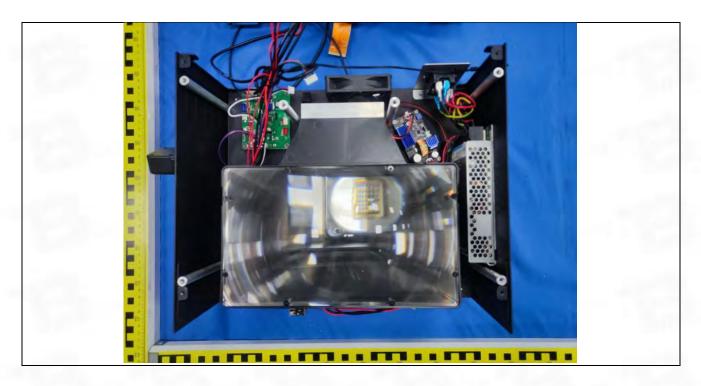


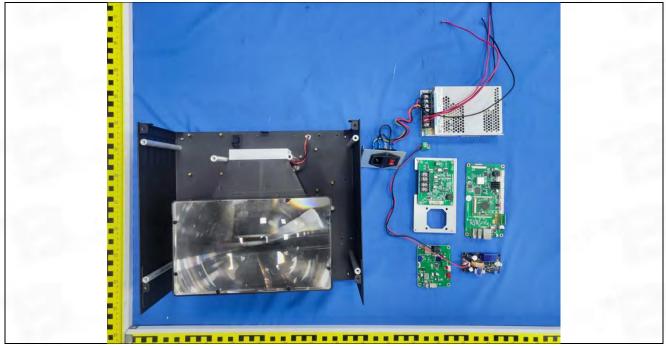


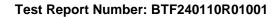




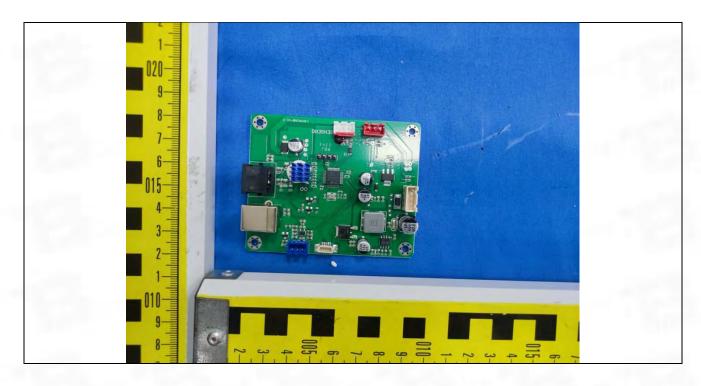




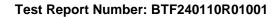




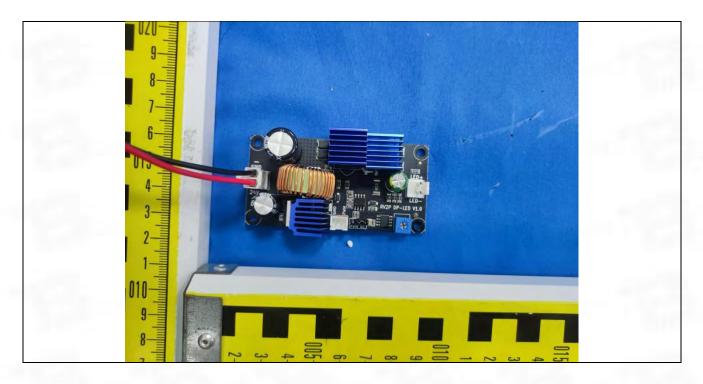


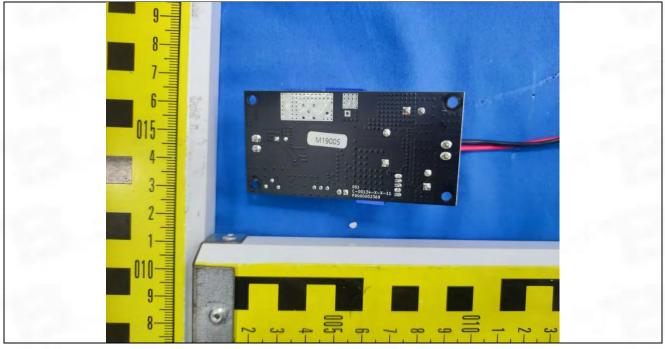


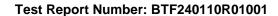




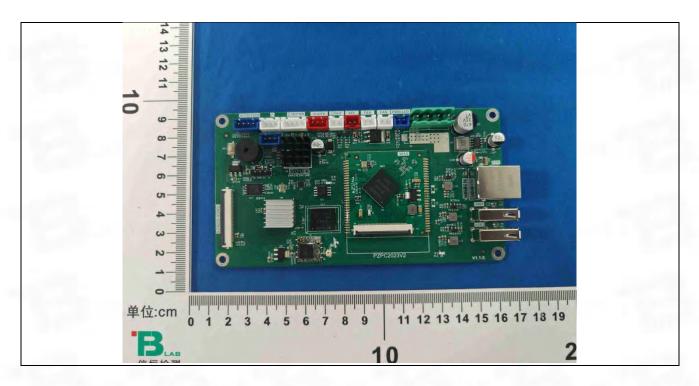


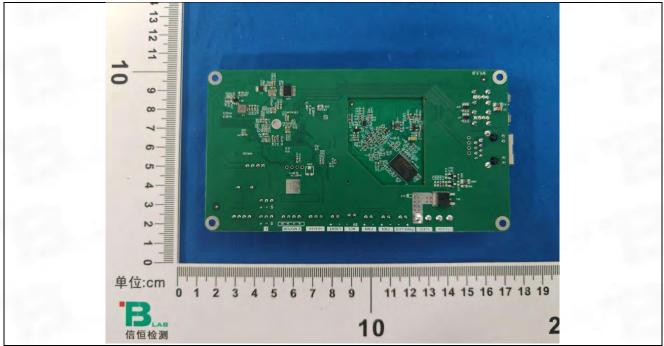


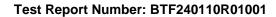






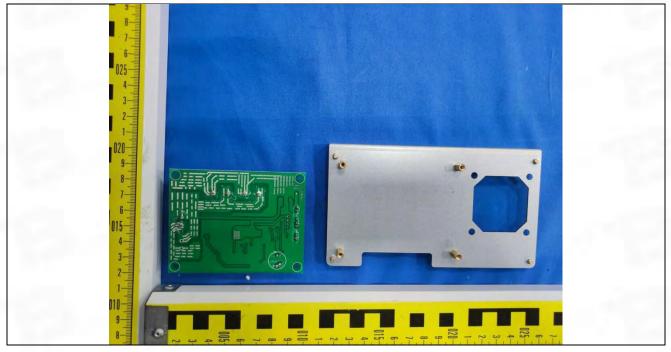


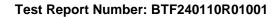






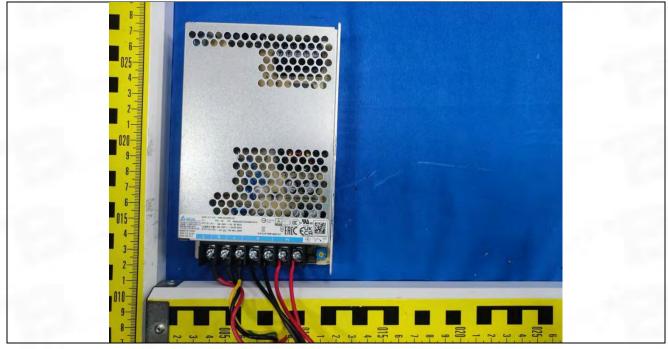


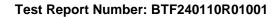




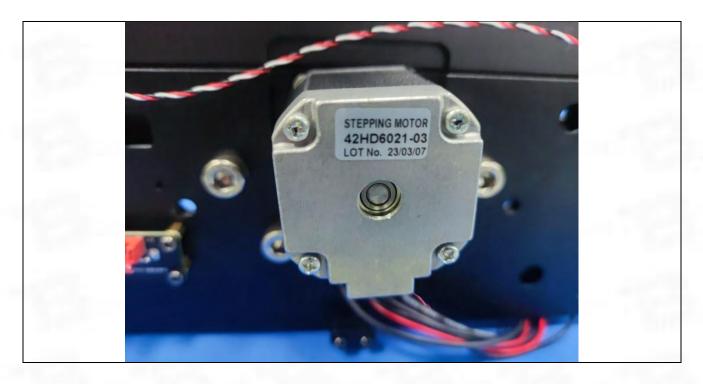


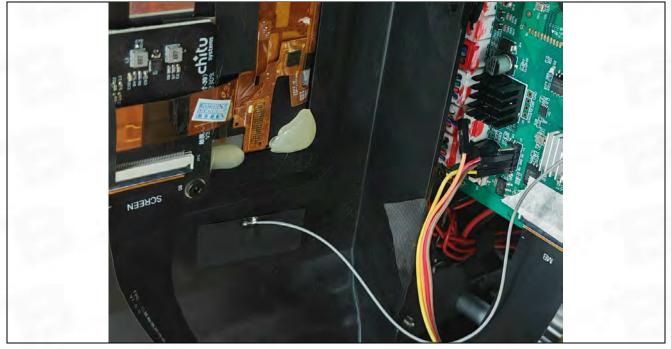








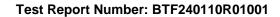








Appendix



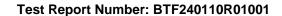


1. Duty Cycle

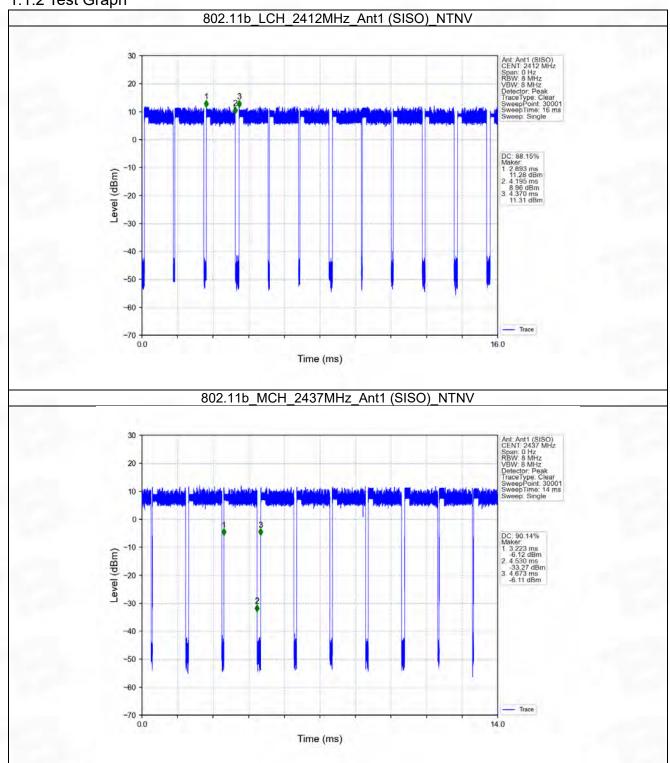
1.1 Ant1

1.1.1 Test Result

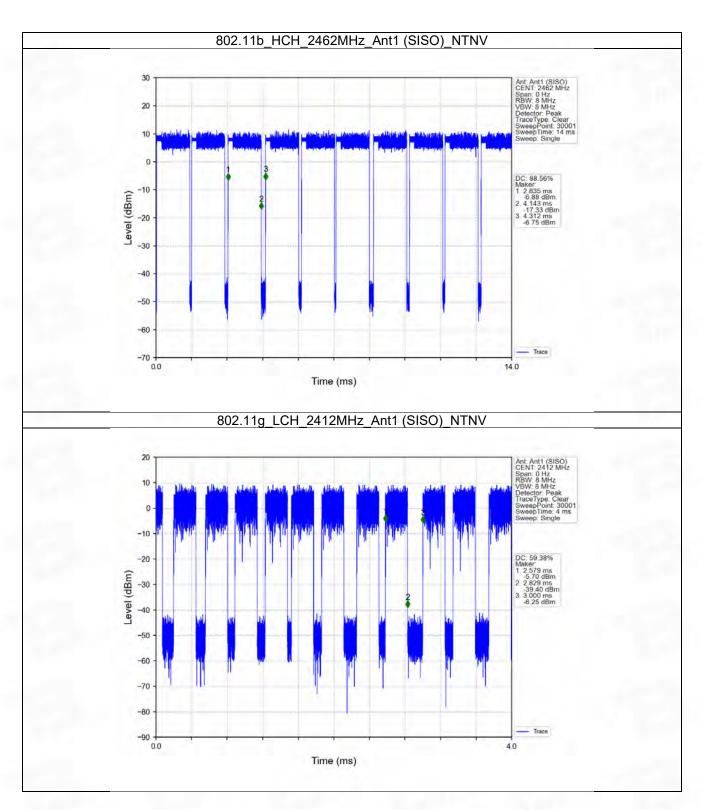
					Ant1		
Mode	TX	Frequency	T_on	Period	Duty Cycle	Duty Cycle	Max. DC
Mode	Type	(MHz)	(ms)	(ms)	(%)	Correction Factor (dB)	Variation (%)
		2412	1.302	1.477	88.15	0.55	8.87
802.11b	SISO	2437	1.307	1.450	90.14	0.45	6.60
		2462	1.308	1.477	88.56	0.53	7.63
		2412	0.250	0.421	59.38	2.26	25.37
802.11g	SISO	2437	0.253	0.421	60.10	2.21	25.68
		2462	0.251	0.421	59.62	2.25	25.42
000 115		2412	0.230	0.401	57.36	2.41	29.22
802.11n	SISO	2437	0.230	0.401	57.36	2.41	21.17
(HT20)		2462	0.230	0.392	58.67	2.32	24.97
000 11p		2422	0.131	0.283	46.29	3.35	32.57
802.11n	SISO	2437	0.130	0.274	47.45	3.24	26.77
(HT40)		2452	0.131	0.301	43.52	3.61	21.24



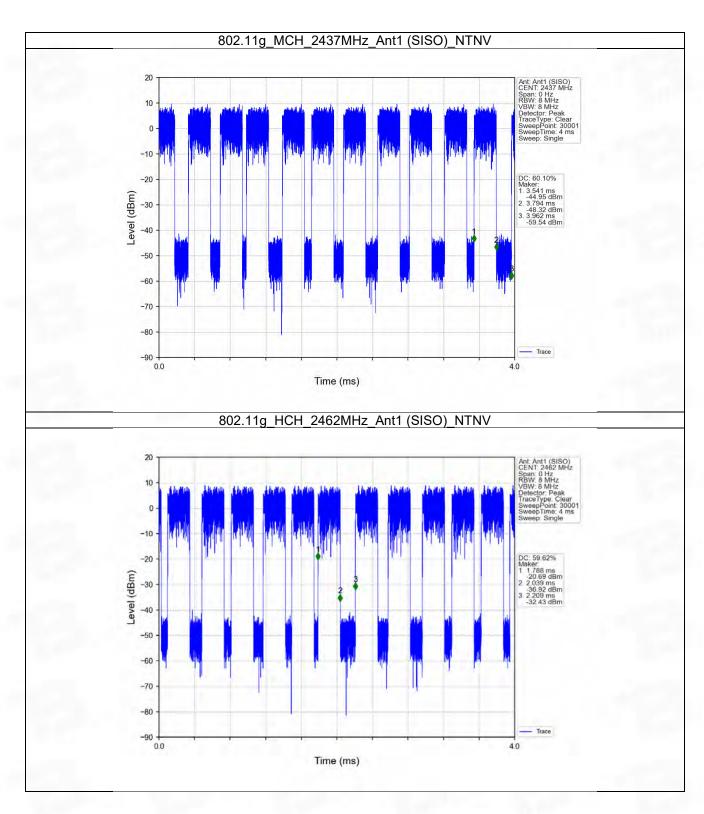




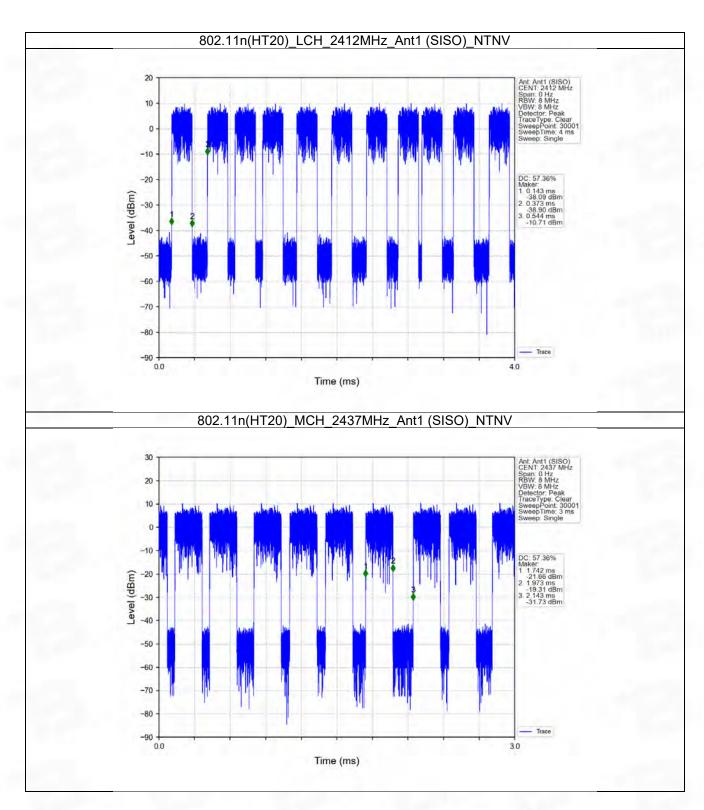




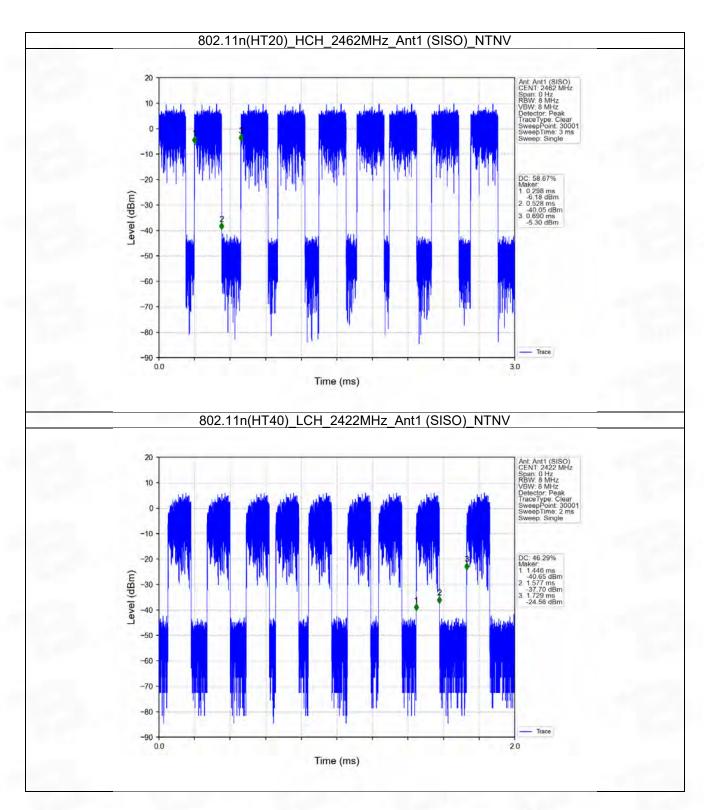




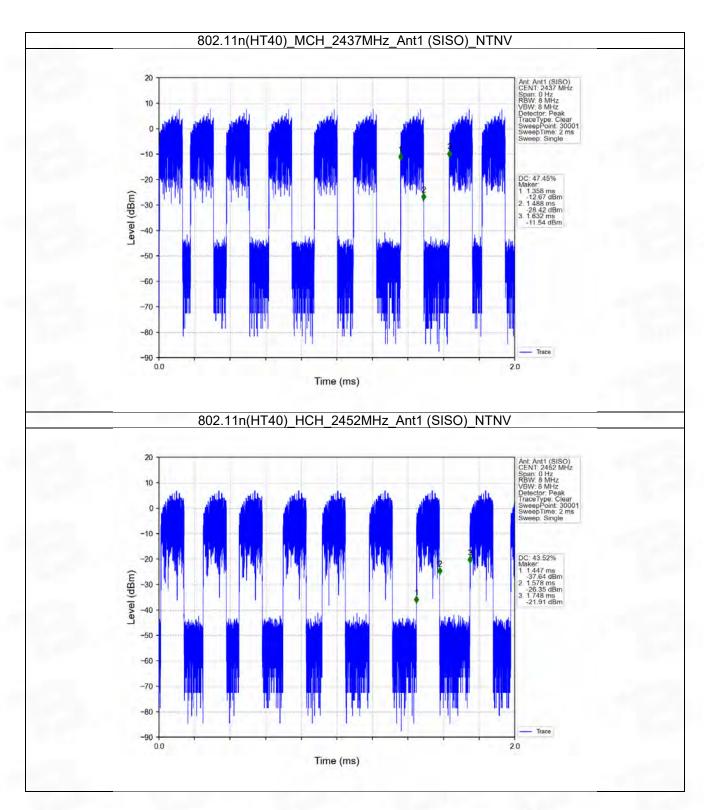


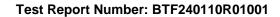












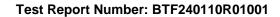


2. Bandwidth

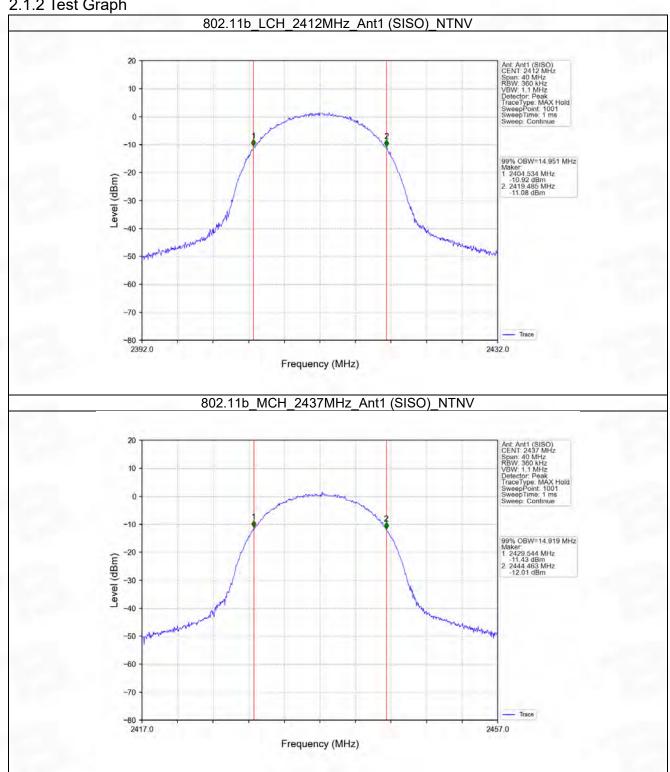
2.1 OBW

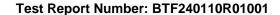
2.1.1 Test Result

Mode	TX	Frequency	ANT	99% Occupied B	\	
	Type	(MHz)		Result	Limit	Verdict
	SISO	2412	1	14.951	1	Pass
802.11b		2437	1	14.919	1	Pass
		2462	1	14.922	1	Pass
802.11g	SISO	2412	1	17.326	1	Pass
		2437	1	17.586	1	Pass
		2462	1	17.240	1	Pass
802.11n (HT20)	SISO	2412	1	18.303	1	Pass
		2437	1	18.006	1	Pass
		2462	1	18.356		Pass
802.11n (HT40)	SISO	2422	1	36.832	1	Pass
		2437	1	36.696	1	Pass
		2452	1	36.553	1	Pass

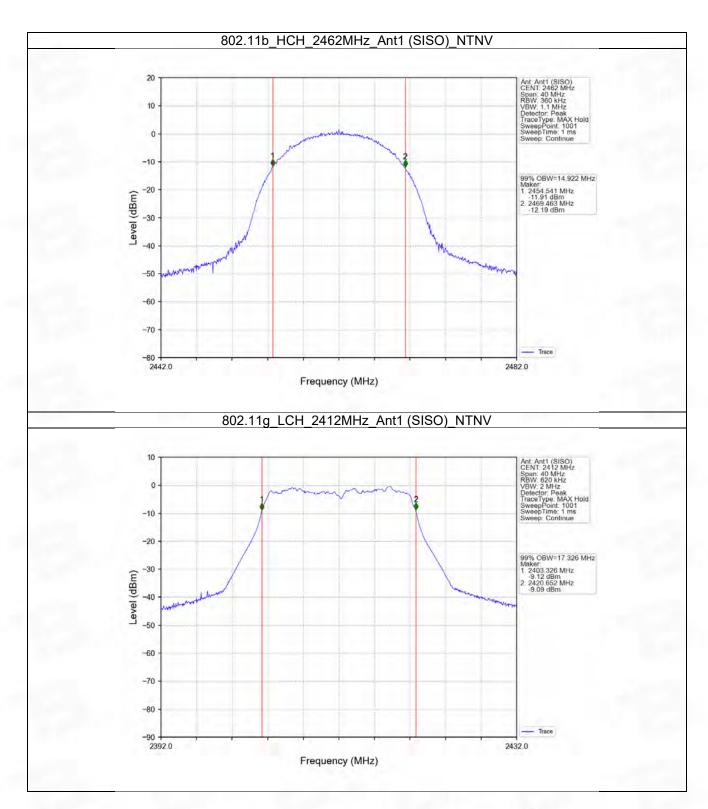


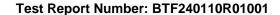




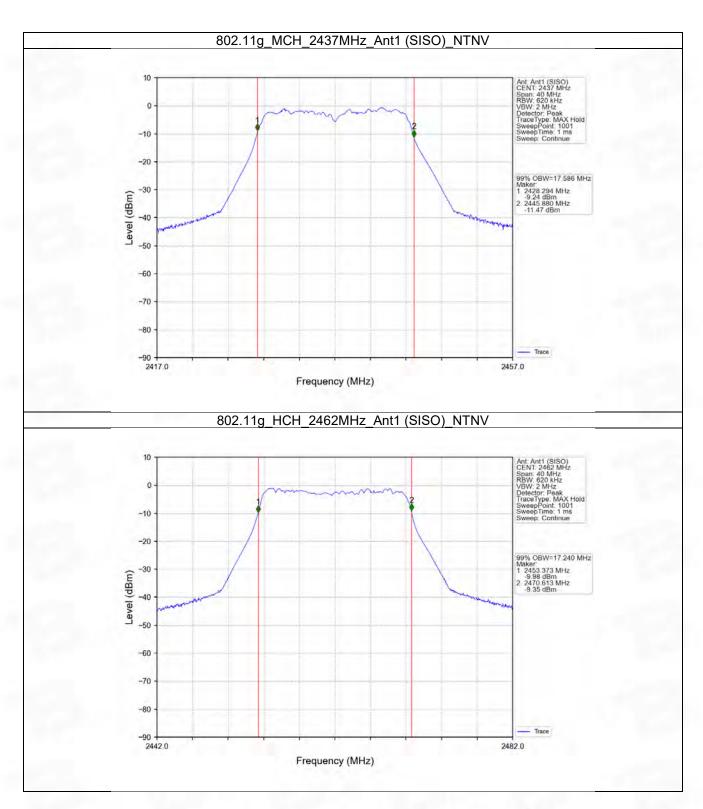


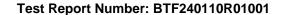




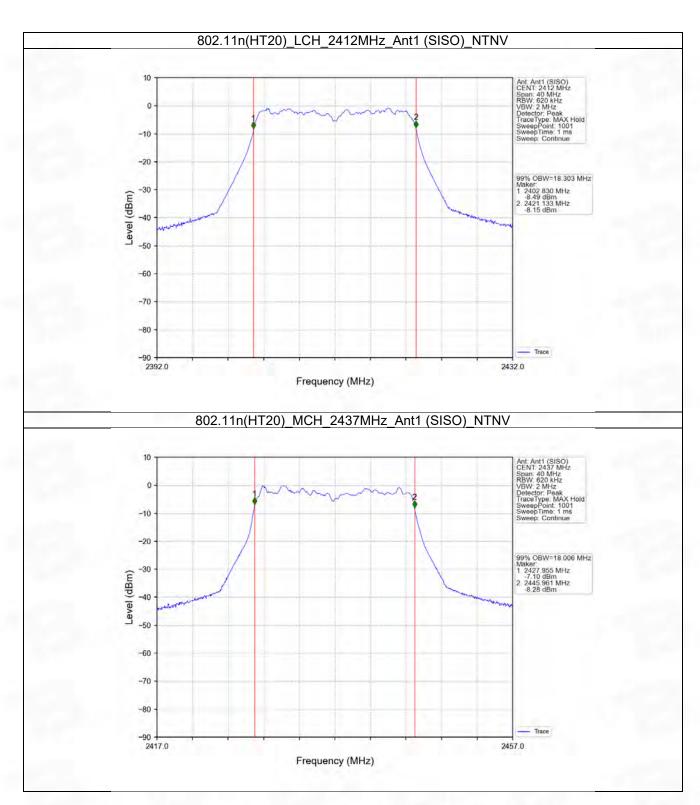


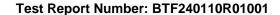




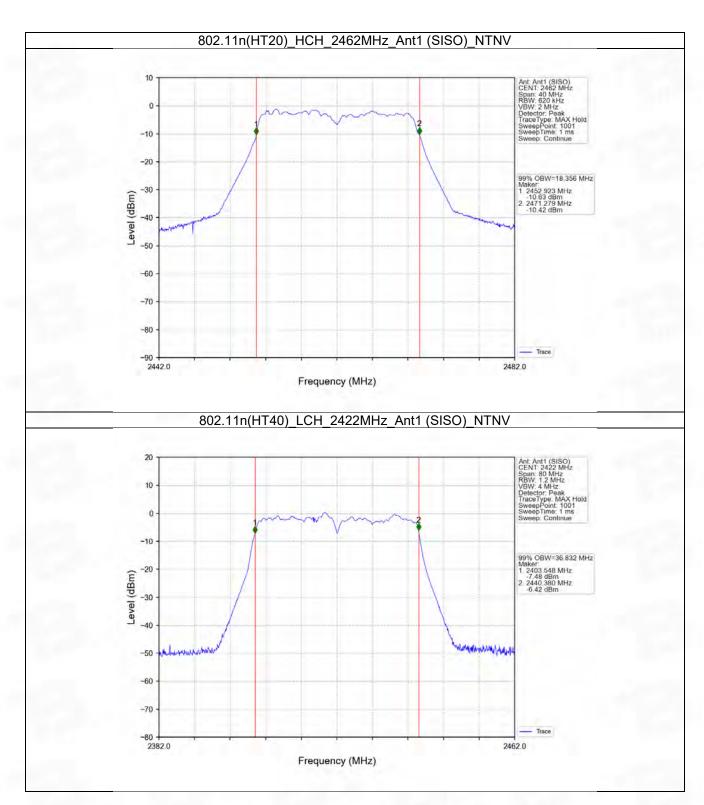




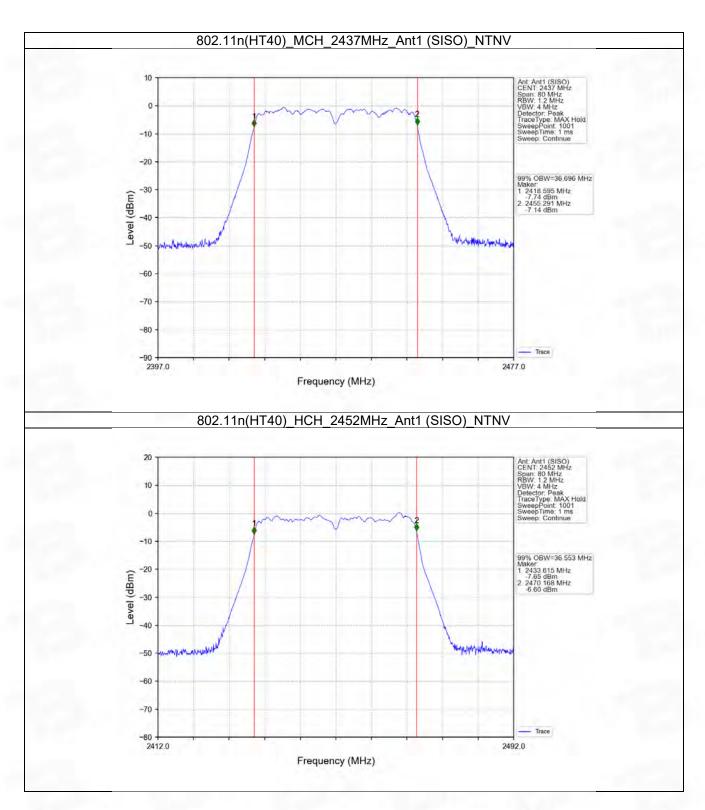


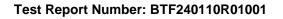










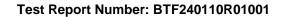




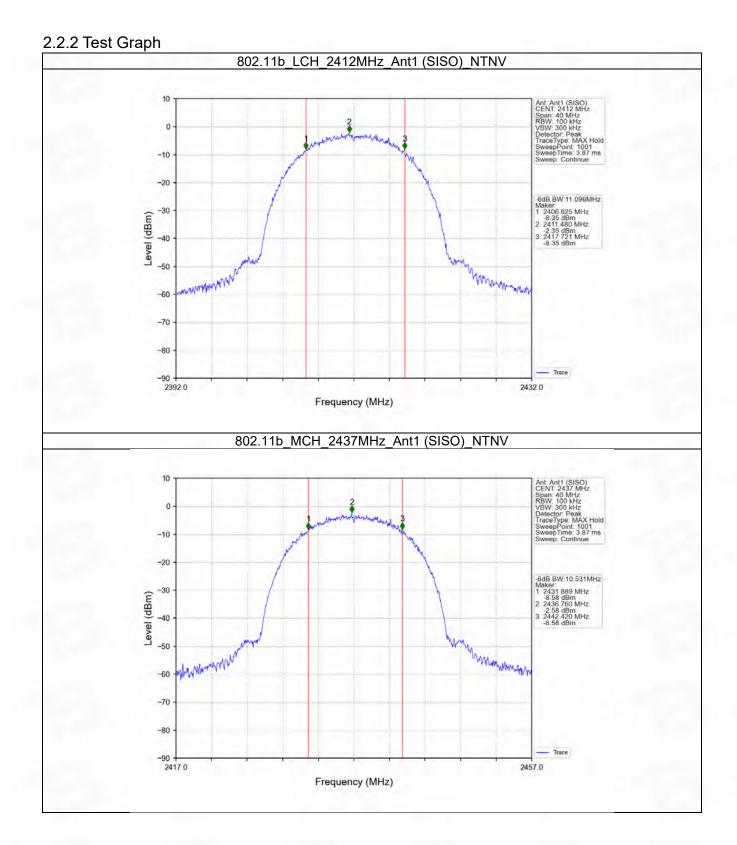
2.2 6dB BW

2.2.1 Test Result

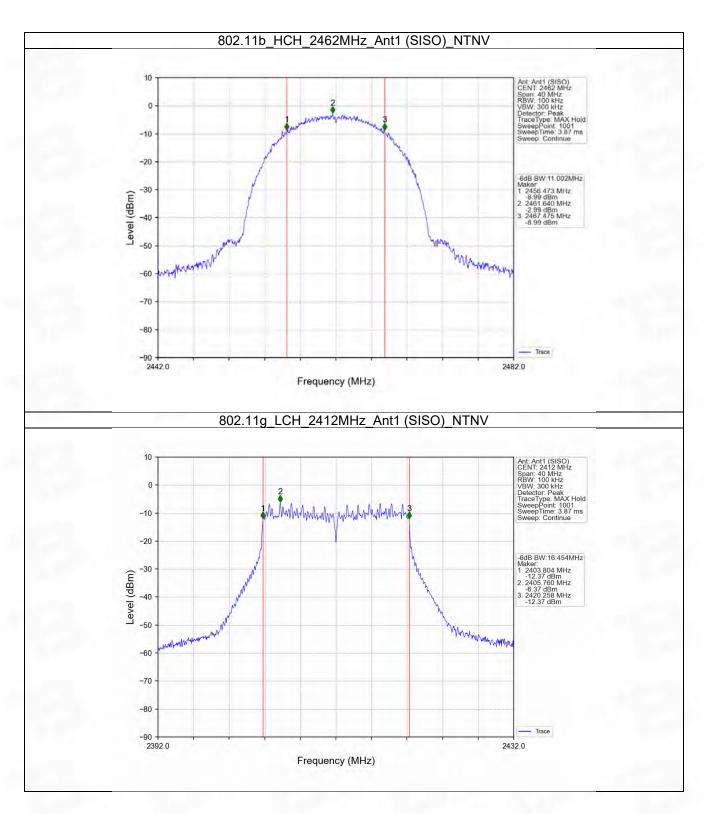
Mode	TX	Frequency	ANIT	6dB Bandv	\/a valiat	
	Type	(MHz)	ANT	Result	Limit	Verdict
	SISO	2412	1	11.096	>=0.5	Pass
802.11b		2437	1	10.531	>=0.5	Pass
		2462	1	11.002	>=0.5	Pass
802.11g	SISO	2412	1	16.454	>=0.5	Pass
		2437	1	16.514	>=0.5	Pass
		2462	1	16.442	>=0.5	Pass
802.11n (HT20)	SISO	2412	1	17.584	>=0.5	Pass
		2437	1	17.349	>=0.5	Pass
		2462	1	17.352	>=0.5	Pass
802.11n (HT40)	SISO	2422	1	36.402	>=0.5	Pass
		2437	1	35.998	>=0.5	Pass
		2452	1	36.074	>=0.5	Pass



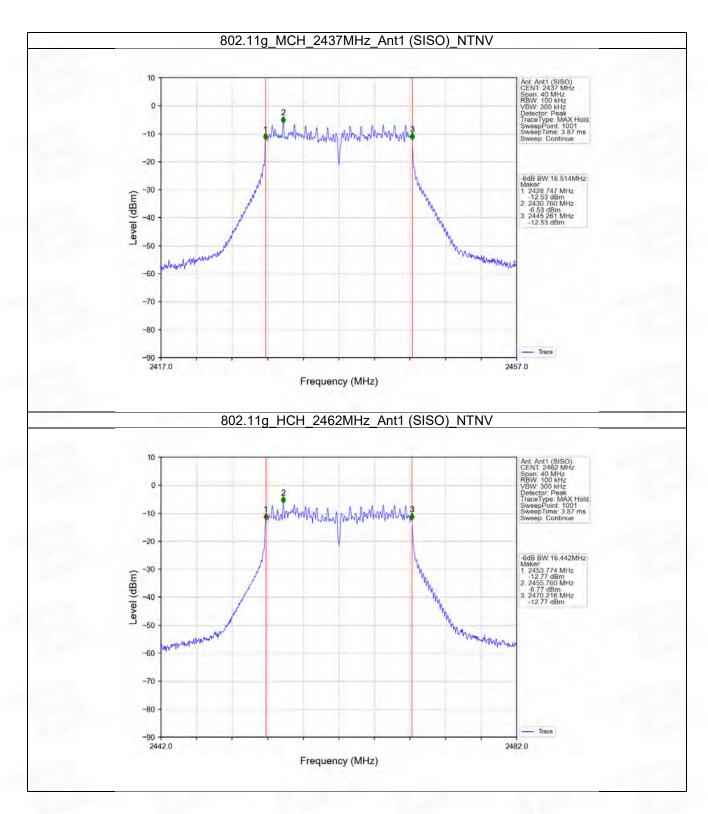




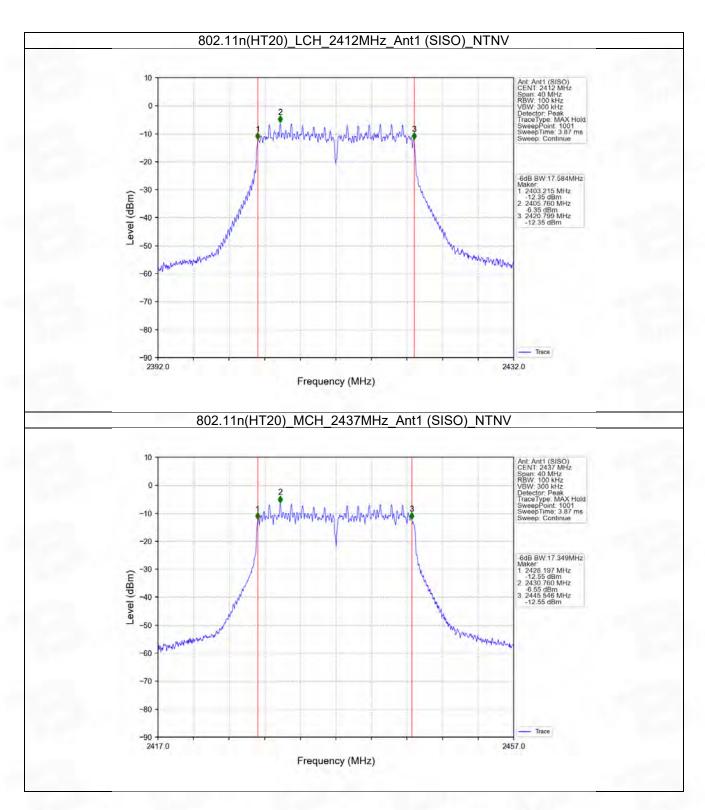


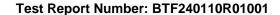




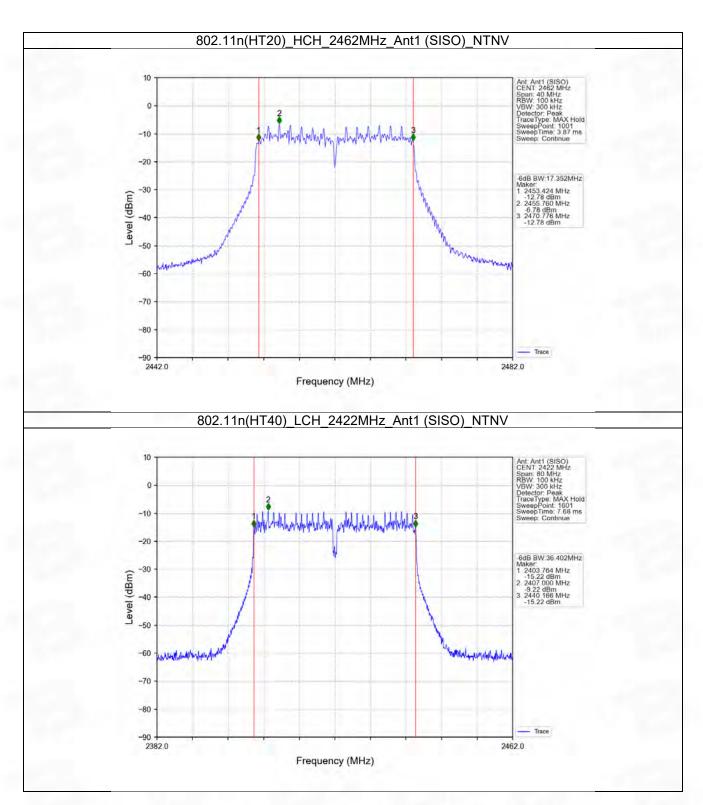




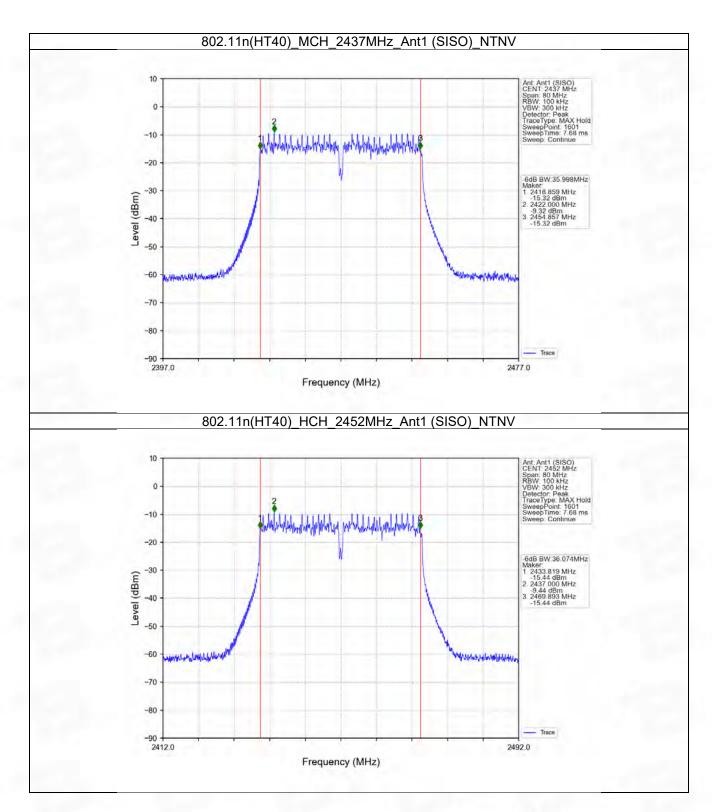


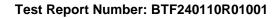














3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

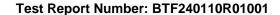
Mode	TX	Frequency	Maximum Peak Conduc	\/a maliat		
	Type	(MHz)	ANT1	Limit	Verdict	
		2412	12.67	<=30	Pass	
802.11b	SISO	2437	12.21	<=30	Pass	
		2462	11.93	<=30	Pass	
802.11g	SISO	2412	12.18	<=30	Pass	
		2437	12.17	<=30	Pass	
		2462	11.99	<=30	Pass	
802.11n (HT20)	SISO	2412	12.41	<=30	Pass	
		2437	12.25	<=30	Pass	
		2462	11.70	<=30	Pass	
802.11n (HT40)	SISO		2422	12.24	<=30	Pass
		2437	12.07	<=30	Pass	
		2452	12.14	<=30	Pass	

4. Maximum Power Spectral Density

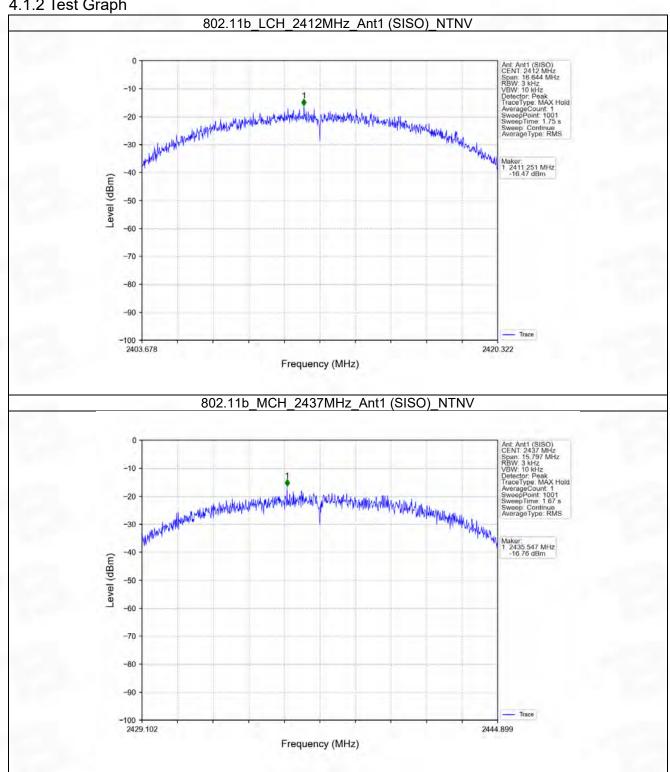
4.1 PSD

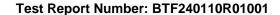
4.1.1 Test Result

Mode	TX	Frequency	Maximum PSI	Vardiat	
Mode	Type	(MHz)	ANT1	Limit	Verdict
		2412	-16.47	<=8	Pass
802.11b	SISO	2437	-16.76	<=8	Pass
		2462	-18.18	<=8	Pass
802.11g		2412	-21.66	<=8	Pass
	SISO	2437	-21.58	<=8	Pass
		2462	-22.05	<=8	Pass
802.11n (HT20)	SISO	2412	-21.90	<=8	Pass
		2437	-21.62	<=8	Pass
		2462	-22.04	<=8	Pass
802.11n		2422	-23.37	<=8	Pass
	SISO	2437	-23.94	<=8	Pass
(HT40)		2452	-24.64	<=8	Pass

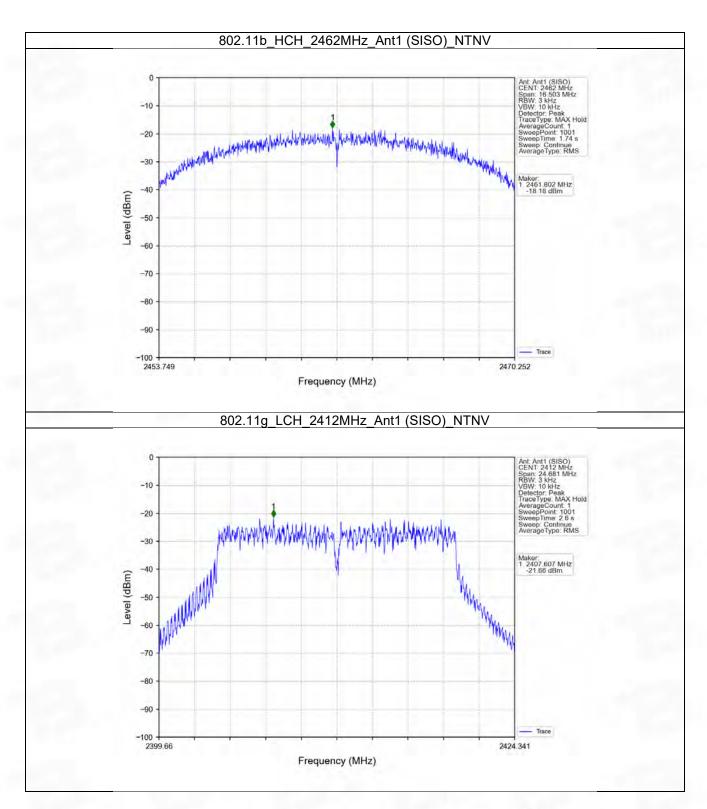


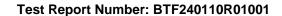




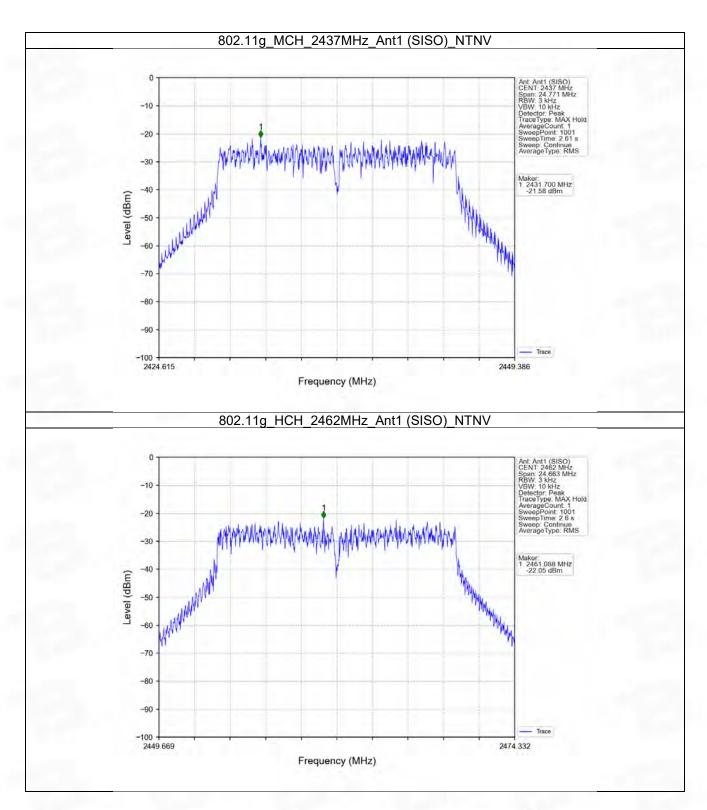


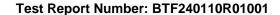




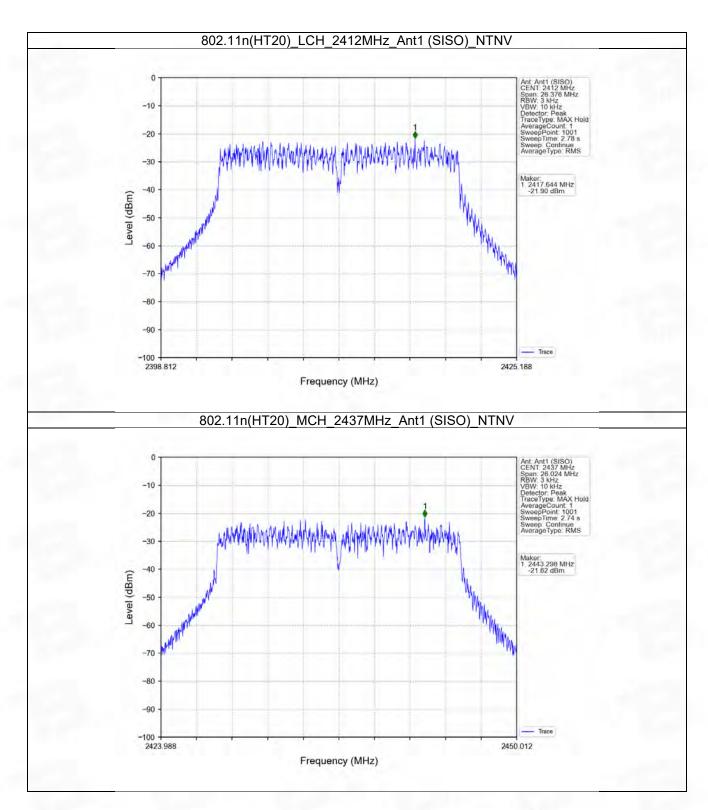


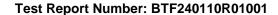




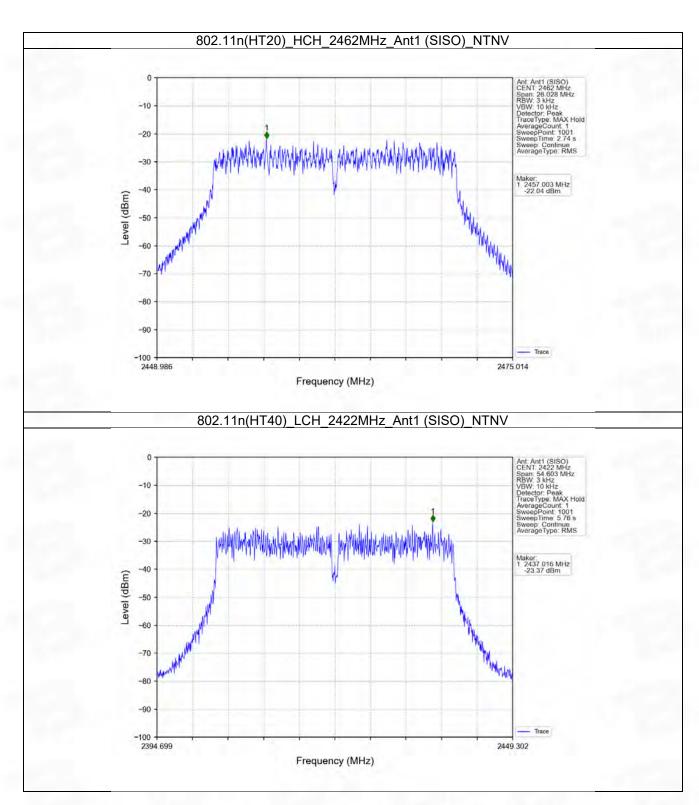




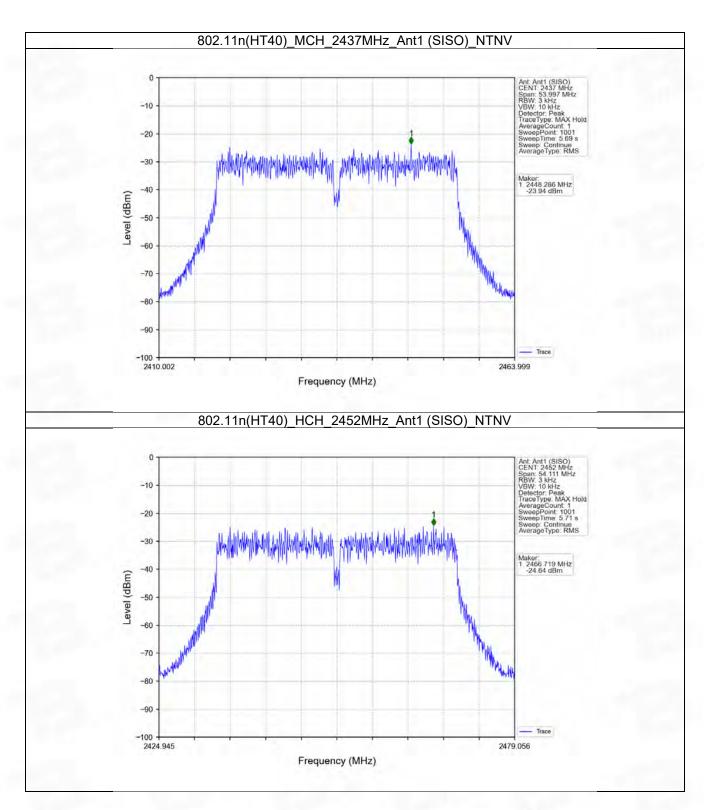


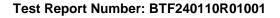














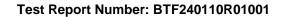
5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Ref

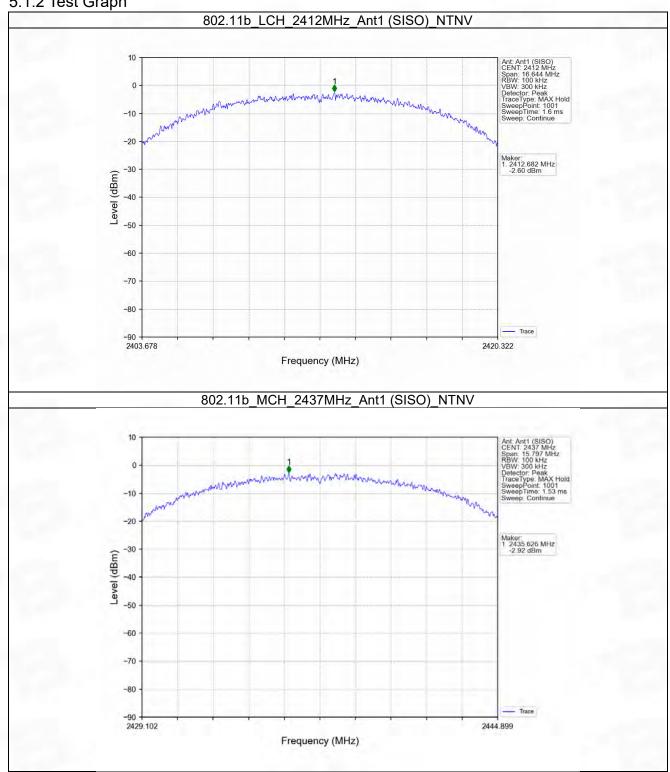
5.1.1 Test Result

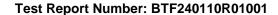
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
		2412	1	-2.60
802.11b	SISO	2437	1	-2.92
		2462	1	-3.53
	SISO	2412	1	-6.37
802.11g		2437	1	-6.50
		2462	1	-6.70
802.11n	SISO	2412	1	-6.28
(HT20)		2437	1	-6.45
(11120)		2462	1	-6.73
802.11n	SISO	2422	1	-9.18
(HT40)		2437	1	-9.24
(11140)		2452	1	-9.34

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

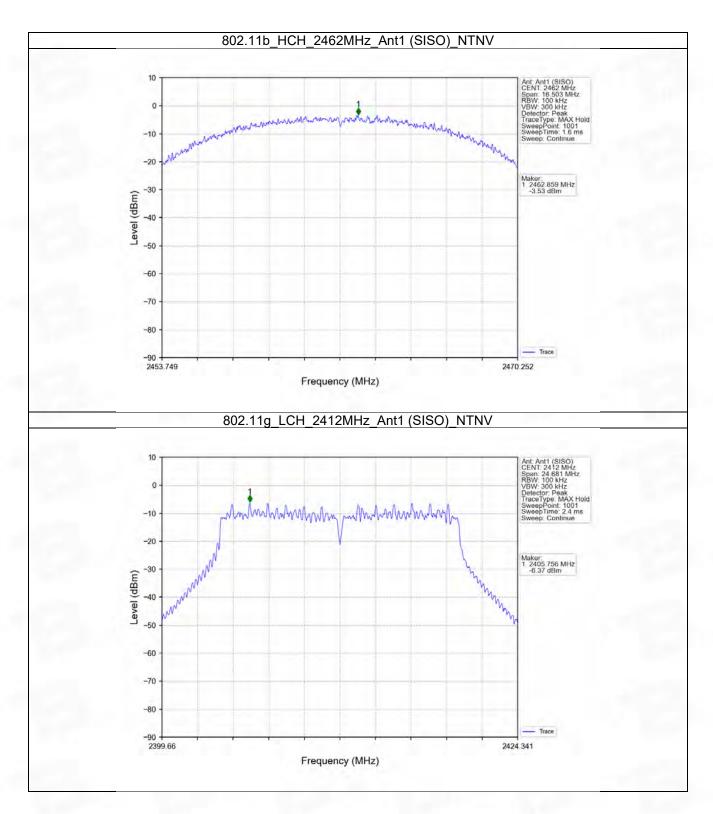


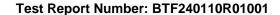




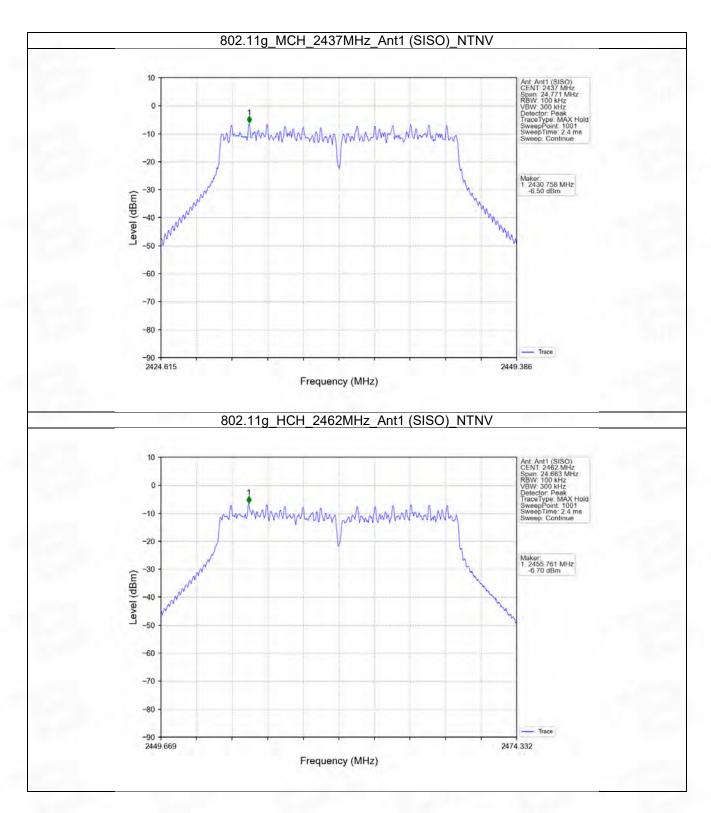


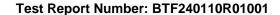




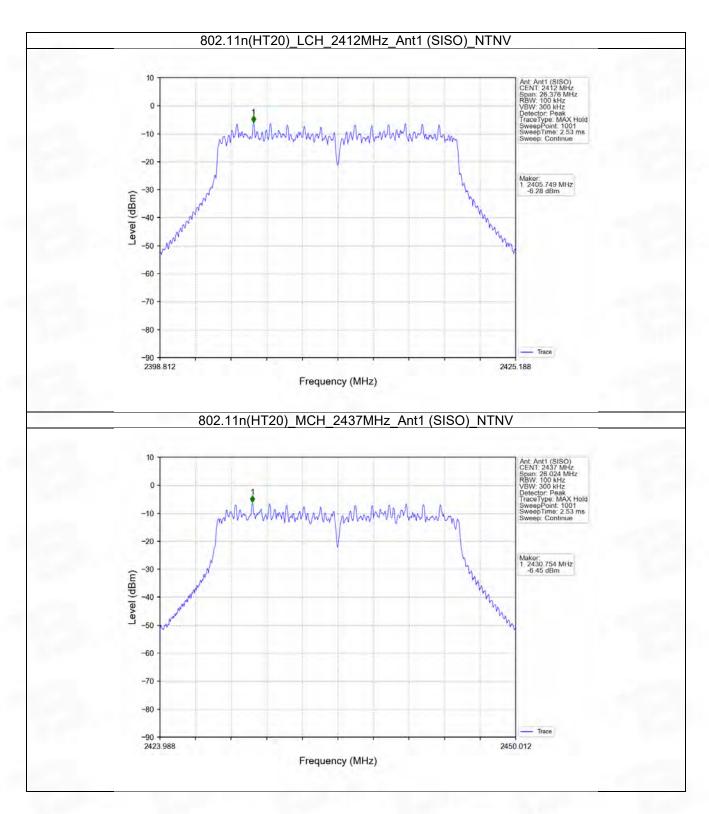


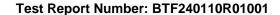




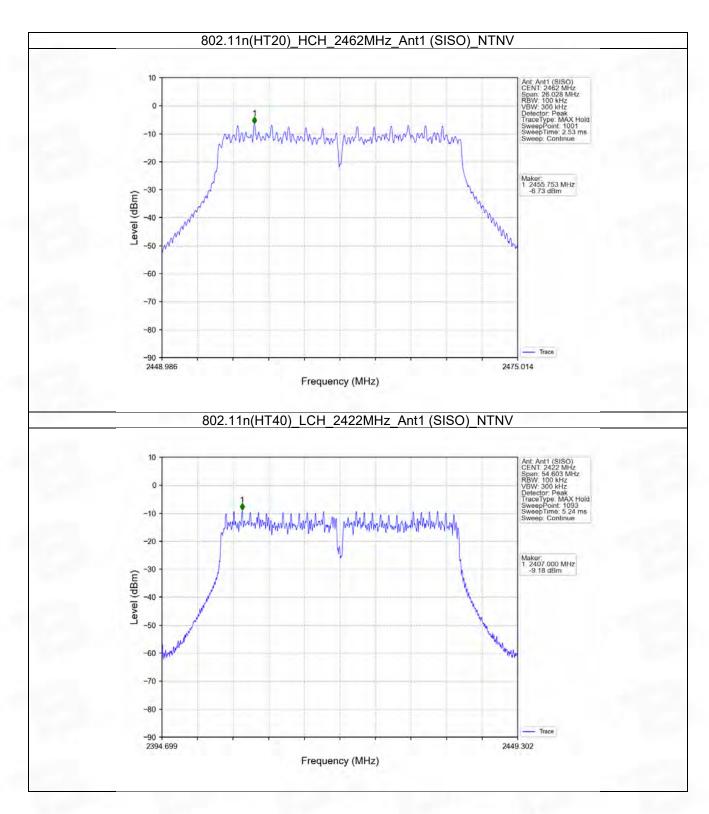


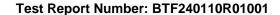




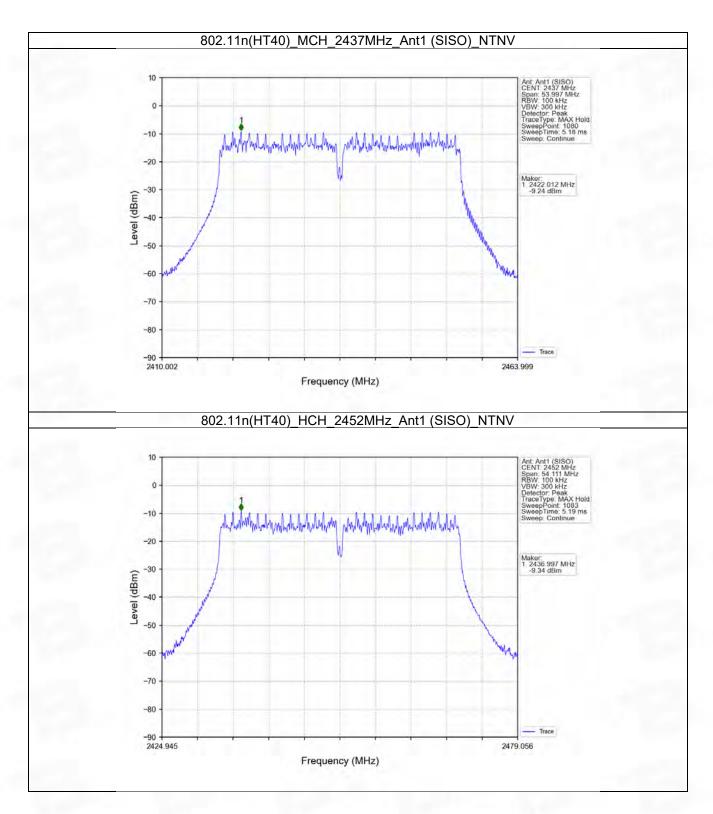


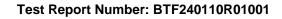












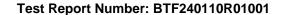


5.2 CSE

5.2.1 Test Result

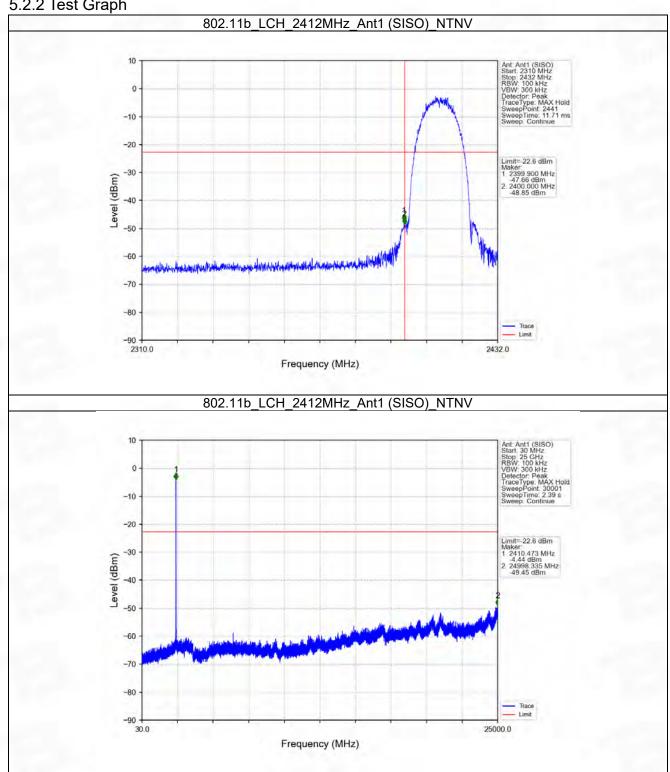
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
	SISO	2412	1	-2.60	-22.60	Pass
802.11b		2437	1	-2.60	-22.60	Pass
		2462	1	-2.60	-22.60	Pass
802.11g	SISO	2412	1	-6.37	-26.37	Pass
		2437	1	-6.37	-26.37	Pass
		2462	1	-6.37	-26.37	Pass
802.11n (HT20)	SISO	2412	1	-6.28	-26.28	Pass
		2437	1	-6.28	-26.28	Pass
		2462	1	-6.28	-26.28	Pass
802.11n (HT40)	SISO	2422	1	-9.18	-29.18	Pass
		2437	1	-9.18	-29.18	Pass
		2452	1	-9.18	-29.18	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

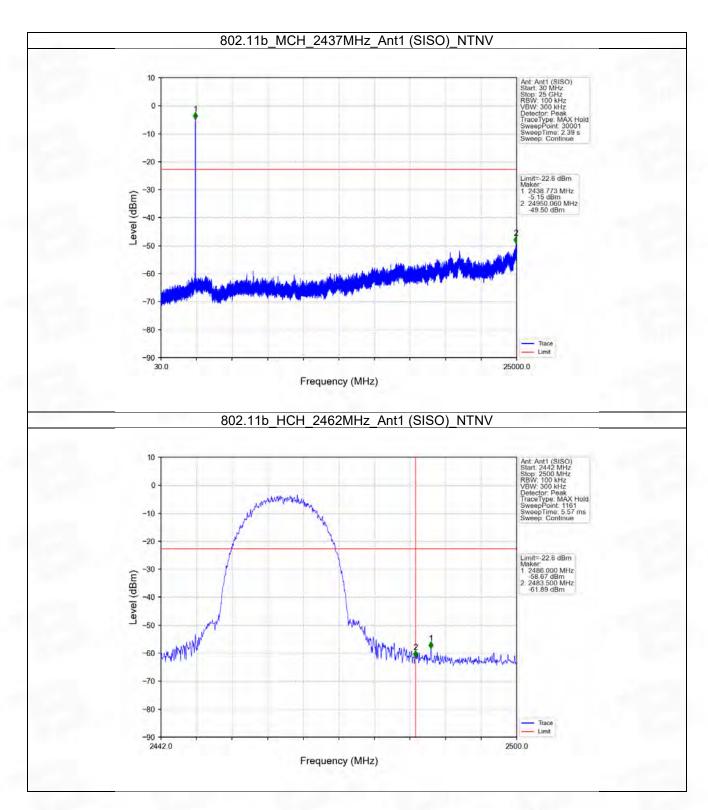




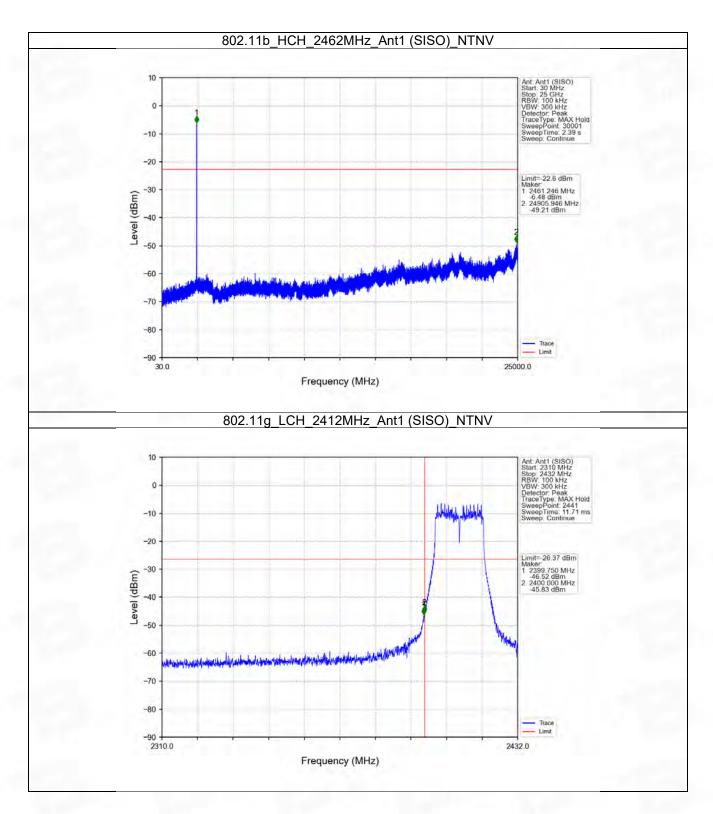
5.2.2 Test Graph



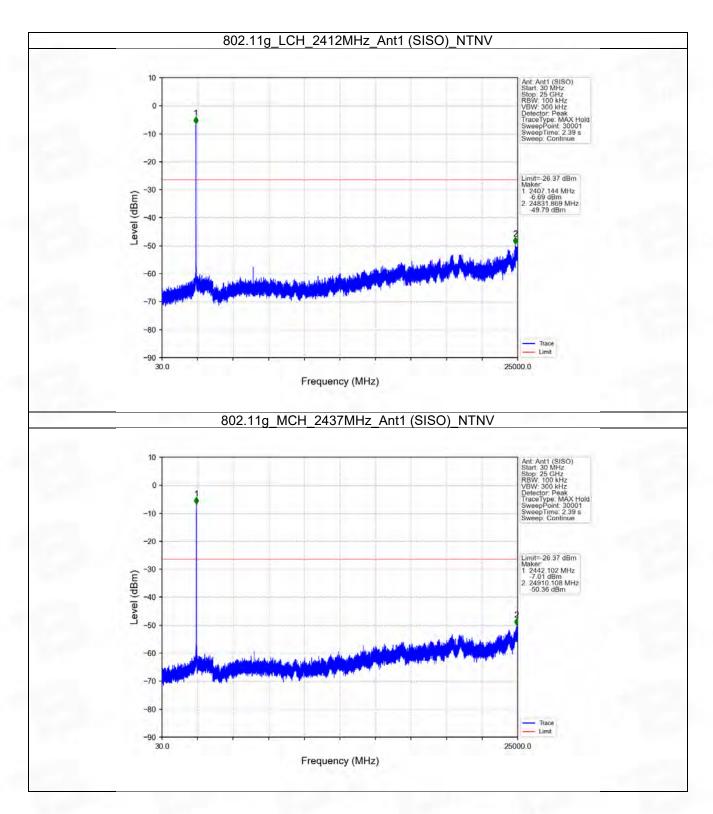




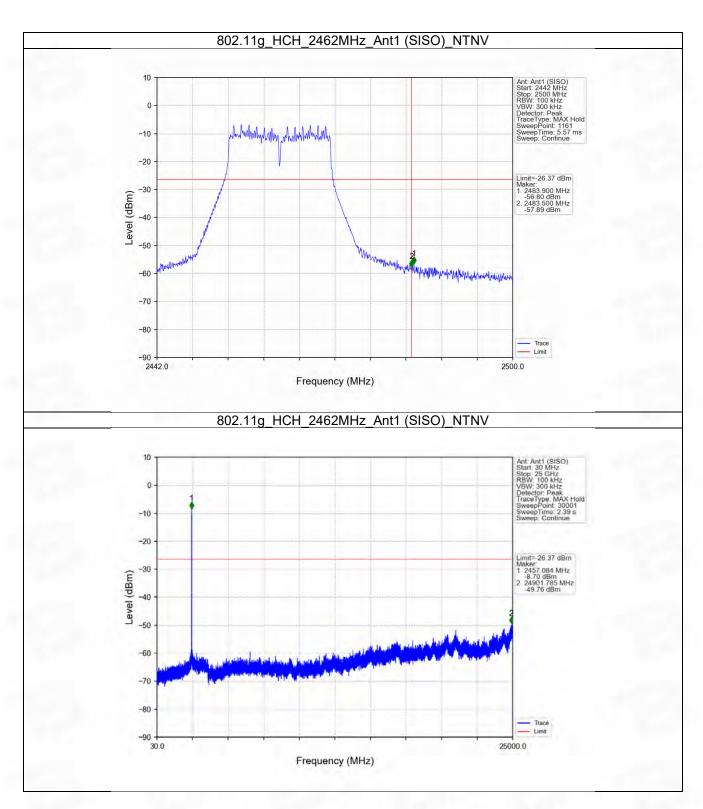




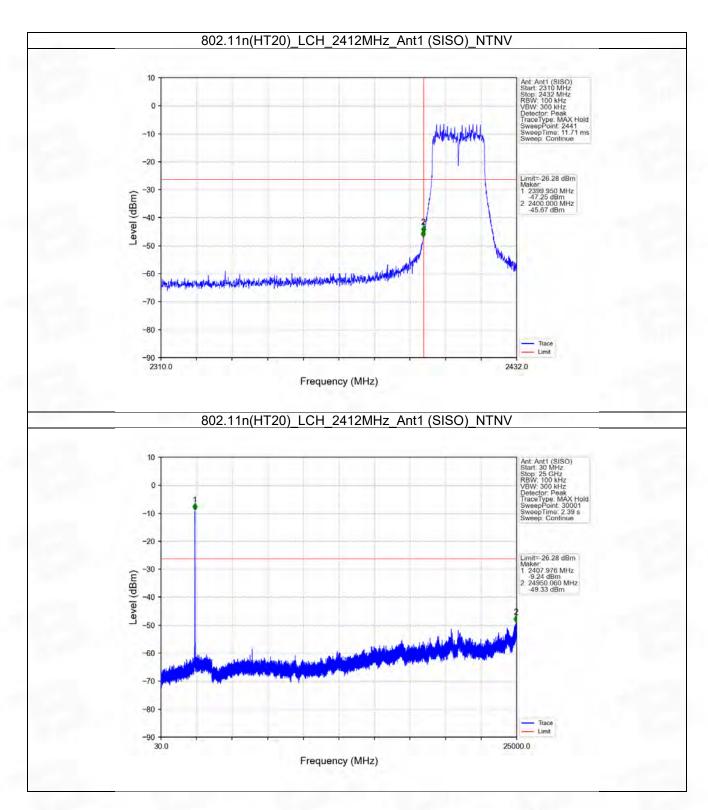




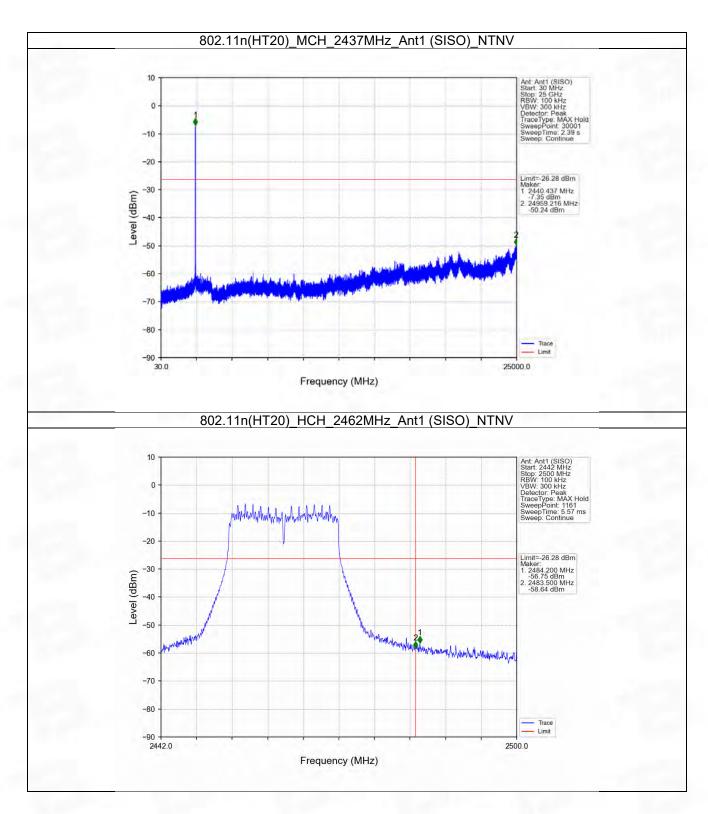




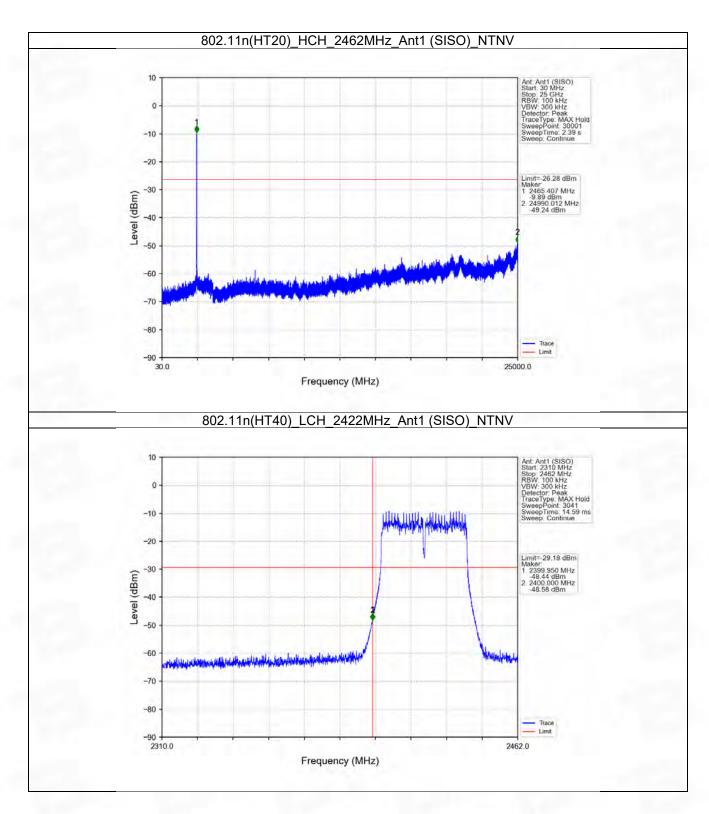




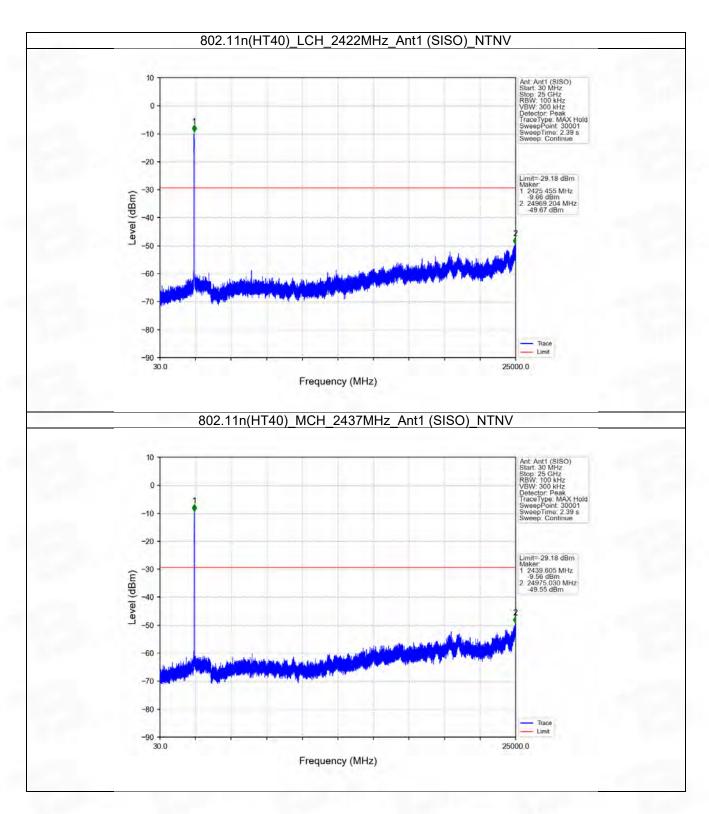




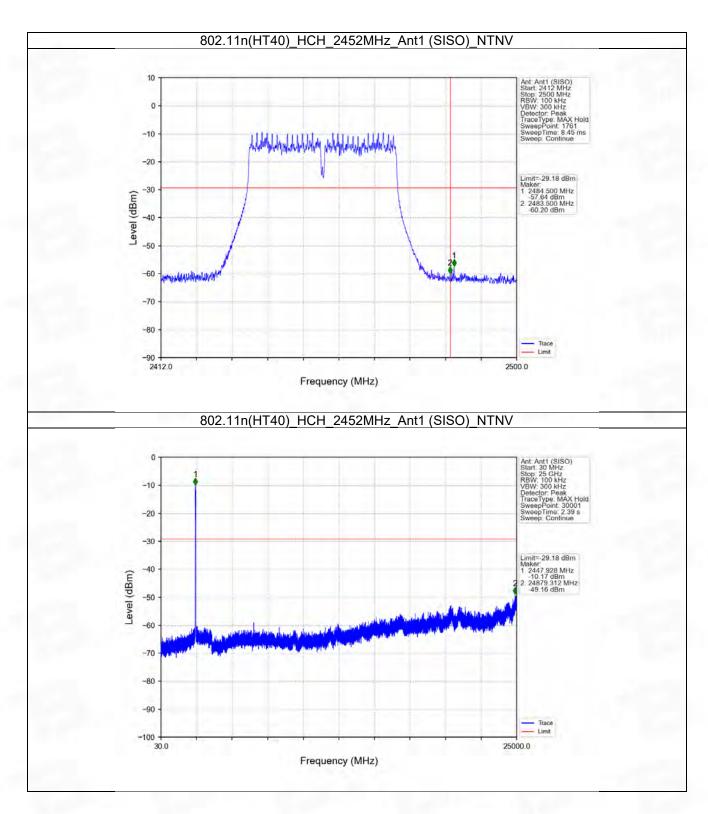


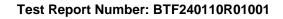












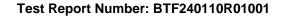


6. Form731

6.1 Form731

6.1.1 Test Result

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2412	2462	0.0185	12.67
2422	2452	0.0167	12.24







BTF Testing Lab (Shenzhen) Co., Ltd.

F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

www.btf-lab.com

-- END OF REPORT --